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The Christmas Spirit in the Hospital

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ALL that is most kindly and most genial, most tender in human nature, revives at Christmas time. The sophisticated old world, doddering along, in the midst of its ultra-civilization, goes back for awhile at Christmas to the pure and simple joys of childhood. In honor of the Child who is given, the Son who is born to us, the Christian world becomes childlike once more in the midst of innocent gayety. Old customs are remembered, old friends are greeted, the recollections of childhood grow suddenly vivid and bright; and Christmas wreaths and Christmas greetings spread a bright smile across the face of the weary world.

The feast of Christmas, like Christ Himself, is full of compassion for the sick and the sorrowful. It is a time of charity for the poor, of compassion for the afflicted, of remembrance for the forgotten, of companionship for the desolate. At Christmas, men and women who think little of others all during the rest of the year are suddenly full of active charity. They visit the sick, they send greetings to forgotten friends, they spend generously on others, they forget themselves. This is the purest joy that Christmas gives, the opportunity to do so much for others; and all this generosity, friendliness and love of Christmas, this joy in giving, this pity for the afflicted and compassion for the unfortunate, are symbolic of the great Gift of Christmas, when the eternal Father gave to the world His divine Son to be our Christmas Gift; to console our sorrows, to heal our misery, to bring us health, happiness, and peace of soul.

In The Catholic Hospital

The Feast of Christmas should bring vividly to mind and sink deep the realization of the true purpose of the Catholic hospital. Without Christmas, there would be no Christian charity. The Infant Jesus, in His mother's arms, is the Reason, the Motive, the Founder, and the Inspiration of every Catholic hospital. When Christmas dawns, trailing its swift line of light and glory over all the continents, it will shine moment after moment, on countless Catholic Hospitals, scattered over the whole world, speaking a score of tongues, harboring the afflicted of every nation, white men and brown, black men and red, rich and poor, with a charity universal like that of Christ Himself.

Smiling from His mother's arms, the new-born King will enter into each of these hospitals as into His own. There He is at home. There He rules of His own right. The material structure of these hospitals belongs to His Church. Their spiritual world owes allegiance to His divine majesty. They all say, with one meaning, in many tongues, from many nations, of many lands: "We are Christ's. We serve Christ the King. We owe allegiance to the newborn Master and Savior of men."

When these calm eyes of Christ survey your hospital on Christmas morning, how much will He find there which will please Him, console Him, delight His loving Heart? What will He find to desire still, in your busy, serviceable, efficient hospital? He will not judge, as men judge, nor be satisfied with merely what the world approves and applauds. He has come to spread fire on the earth, He has come that men may have spiritual life, and may have it more abundantly, and He will first look to see whether that life and that fire are burning brightly in your hospital.

His eyes will not rest long on your beautiful equipment, on your wonderful operating room, on your marvelous records. He will approve these things with a glance, not for their own sake but for the motive with which you have provided them for His love and for the love of His afflicted brethren. But then, His eyes will look into the eyes and souls of every one, of the hospital workers, of the staff, of the patients, and He will see what is invisible to our eyes, the spiritual atmosphere of the hospital, its Christlike spirit, its enlightened, vigorous zeal for souls.

Not Science But Salvation

It is very significant that during all Christ's life on earth, He Who is the eternal wisdom, concerned Himself entirely with the salvation of souls. All that He did, He did for that end. He delighted to heal the sick and to mend stricken bodies, but He always did this as a means to an end, and the end was the healing of the soul. He never, so far as the gospels tell us, added

one particle to the human science of the times. He could, with a few short sentences, have advanced medical science indescribably, but He did not do so. He could have disclosed the secrets of the stars, and revealed the infinitesimal worlds of ions and electrons that lurk in the smallest particle of dust. But He remained silent on all these things and left it to the ingenuity of man to discover them in due time. Science is not necessary for the saving of souls, for which He had come on earth. Christ's one great work, His constant concern, was to preach the good news of salvation and to heal the souls of men.

We can easily realize, therefore, how the eyes of the Infant Jesus, on Christmas morning, will look to see how the souls of hospital workers are atune to His teaching, how the atmosphere of the hospital is favorable to the healing and saving of souls. He will be pleased, that loving Child, if He sees everywhere the testimony of good books that His spirit is strong in the hospital, if He finds that in the school of nursing His holy teachings hold a paramount place, even in the crowded curriculum.

When He reads in the hearts of all so great and sincere a love for Him, that it overflows in skillful ministration to His brethren, He will be comforted. When He discerns that every one in the hospital is acting on the inspiration of His saying that whatever they do to the least of His brethren, is done to Him, and that they care for the sick as though it were Christ Himself whom they are comforting, then He will rejoice. For this is the spirit of Christ and the spirit of Christmas.

There will be much pleasant activity in our hospitals this Christmastide. Catholic hospitals throughout the land are prosperous and happy, and they can afford to be generous with their patients and to provide some special Christmas cheer. There will be Christmas wreaths on the walls and a Christmas tree with its many colored lights sparkling in the vestibule. There will be sprigs of holly on the trays and Christmas carols will sweetly sound upon the air at Christmas dawning. All these things are in tune with the holy season, when we seek to give as much joy as possible to all those about us. But there is One in particular whose heart we should strive to rejoice at Christmas. He is our unseen, yet most faithful Guest, the One who remains in our Catholic hospitals, day after day, year after year, never departing, though other guests come and go, though all the personnel of the hospital die or be changed. In the stillness of the tabernacle waits the loving Christ Child, that we may bring Him the only gift He prizes, the gift of souls.

It is not enough that our whole hospital system is dedicated to Him, that it bears His name and seeks cooperation for His sake. It is not enough that the material side of the hospital is excellent and beautiful, though this also He desires. It is not enough that the whole world should praise the excellent technic, the splendid service, the kindly courtesy of the hospital, though these things are pleasing to Him. What He most desires is that His spirit, His purpose, shall be paramount in the work of the hospital, and that while all that makes for the good of the body is not neglected, all that makes for the good of the soul shall, in particular, abound.

If, then, in casting your eyes about in your hospital, you find that there is still something to be done in order to make its atmosphere entirely pleasing to Christ, that its religious spirit needs more aid in the shape of conferences, of instructions, of good books, that more should be done for the souls of men, in order to make them more like Christ, then supply these needs betimes, while Christmas is still approaching. Thus, you will bring the true spirit of Christmas into the hospital, and you will give to the Babe of Christmastide a truly merry Christmas, when with such love He enters into your hospital on Christmas morning.

Catholic Hospital Association To Meet in Cincinnati

The officers of the Catholic Hospital Association of the United States and Canada have issued a preliminary announcement of the Thirteenth Annual Convention of the Association to be held at the Music Hall and Auditorium, Cincinnati, Ohio, June 18-22, 1928.

The location, plans, and details of the convention have been studied carefully for several months by the officers of the Catholic Hospital Association and the Hospital Exhibitors' Association, with a view to obtaining the very best possible results for all concerned. After careful analyses of questionaries to all exhibitors, and personal investigation of the convention facilities offered by a number of cities Cincinnati has been found best suited to the special requirements of the thirteenth annual convention.

Guided by experience gained at previous conventions, the officers have worked out the following tentative plans:

The convention will be housed in the Music Hall, at Cincinnati. The general exhibits will be in one room on the street floor, at the main entry. Registration and executive officers will be in the same room as the exhibits.

The clinic idea will be carried out again. The clinics will be held in separate rooms, around and above the exhibits. The general meetings will be held in the theater of the Music Hall in the same building as the exhibits and clinics. The programs will be reduced and intensified. One afternoon will be given over to the exhibitors' reception to delegates.

Why A Purchasing Agent?

Frank J. Walter, Purchasing Agent, Colorado General Hospital, Denver, Colo.

MORE so in institutional management than in any other type of business, have old, out-of-date methods of organization persisted. Competition has compelled commercial administrators to adopt the most efficient methods of conducting business. On the other hand, the sentiment which surrounds an institution, has shielded it from competition similar to that of the commercial world. As a result of this condition, two schools of hospital administration have developed. The old, or inefficient school, is content to remain shielded from competition, and often compelled to call upon the public for additional funds to make up its regular deficit; while an institution working under modern administrative principles may also at times be compelled to require outside aid, the amount under similar conditions will be remarkably less.

Most hospital administrations are founded upon the principles of the modern school—progress and efficiency. Their superintendents are anxious to apply every advanced principle of hospital administration and of improved business methods. Their boards of directors are not content with merely the auditor's approval of expenditures; they go farther, and demand that an efficient accounting, as well as an honest one, be made. They demand that every dollar shall be spent to the greatest advantage of the institution. This is the work of the purchasing agent in the modern hospital administration. The purchasing agent would be an economic loss in an institution of the old school, but in an institution of the latter type, his services are invaluable. I do not mean to infer that any organization without a purchasing agent is not, or cannot be, of the modern school; but I do say that without him the purchase of supplies is carried on in a less economical and efficient manner. This is not because the superintendent is not capable of purchasing, nor because he is unable to receive the greatest value for the money expended, but it is an accepted fact that the superintendent of a modern hospital cannot devote the amount of time the task of scientific purchasing requires, and at the same time perform the other administrative duties demanded of him. Likewise decentralized departmental purchasing has proved to be inferior.

Supplies Are Important

While the modern hospital purchasing agent justifies his existence by a saving in the amount expended for supplies, his efficiency cannot be measured in monetary terms. The service which his department renders is a greater asset. This service should be more appreciated in a hospital than in an industrial concern. Here, a lack of supplies may mean a loss of life, while in the latter case, it would mean merely the loss of a few dollars and a slight delay. It is not only the function of the purchasing agent to buy all supplies, but it is his task to see that they are at the right place, at the right time, and in the right quantity. The flow must never cease, and he must be on the alert to prevent any unforeseen obstacle which would tend to do this.

The hospital purchasing agent faces a task more complicated than that of an industrial purchasing agent. The latter, while using the same principles, is not called upon to procure such a vast assortment of items. As a hospital administrator, at some time or other, you purchase almost every item common to industrial concerns, and in addition, a vast array of items for which an industrial organization would have no use. Due to the increased quantity of items, the hospital purchasing agent must familiarize himself with many more markets and trade factors.

What is the place of the purchasing agent in modern hospital administration? His position should be directly under the superintendent to whom he is responsible. In many cases, the purchasing agent's duties fall to the assistant superintendent or business manager. Militarily speaking, his rank should be the equal of any other departmental head. He must have the absolute confidence of his superintendent; otherwise, he will be handicapped both by individuals inside of the hospital, and jealous and dissatisfied organizations without.

Purchasing Agent a Specialist

Purchasing is a specialization. It is the result of study, and the application of theories so gained in actual practice. You would not consider placing an inexperienced nurse in charge of a ward, no matter how capable and intelligent she might be. Likewise, you would not place an inexperienced person in charge of such an important function as your purchasing. It is very easy to cite this ideal, but very difficult to apply the theory to practice, since the sources of training a hospital purchasing agent, as in the case of all hospital administrators, are very few. Nowhere can such knowledge be gained except in the school of experience. Such a training is slow, inefficient, and costly at best. The larger hospitals may be fortunate enough in time to train their assistants, but the supply is not sufficient. Textbooks and articles on the subject are very scarce. From time to time items appear in our hospital administrative journals, or in the purchasing agents' magazines, which might be instructive and give some theory to guide the student purchasing agent. The American Hospital Association has found the problem of training hospital executives, and no doubt the committee appointed to investigate this matter will offer some interesting and excellent solutions to the problem.

I have no advice to offer as to how to purchase nor as to what system to use. Such advice would be in bad form. No one wishes to be dictated to as to how and what he should purchase. However, there are a few

principles which are generally necessary, and should be applied by any hospital purchasing agent.

Factors in Buying

The three factors that a hospital purchasing agent must consider before placing an order are: First, when to buy; second, what to pay and where to buy; third, how much to buy. A purchasing agent can be sure of the right time to buy only by scientific study of the market condition. To quote Mr. E. T. Gushee, purchasing agent of the Detroit Edison Company, "such a study usually results in the adoption of a buying policy directly contrary to the one in general use at the time by the majority of buyers. Under normal conditions the largest amount of purchasing is done at high points in the market. The reason for this is obvious. When the demand is heavy, it is usually necessary to buy and prices at such a time are high. On the other hand, if there is small demand for a commodity, the price is low. This increasing and decreasing of price illustrates the normal procedure of purchasing if the time element in buying is not carefully considered. Such a practice serves to give strength to price movements, and can readily be seen to be uneconomical. The purchasing agent should reverse this method, or in other words, make the large purchases at or near the bottom of the market, and the small purchases near the top." In order to determine the condition of the market, let us consider the business cycle.

The important thing in arriving at the correct time to buy is to determine at what point on the business curve we are operating at a given time. Many statistical services chart these business cycles; the Department of Commerce, trade and professional journals, Dun's, and other reliable guides also give such information. As a buyer of finished products, the hospital purchasing agent is more fortunate than the purchasing agent of an industry requiring raw products. While the price of the finished commodity is based upon the raw material required for its manufacture, the change in its price is slower, thus giving the hospital buyer who should be studying the raw market, an opportunity to purchase the finished product before it increases. This point may be illustrated by the following example: If the raw-cotton market is advancing, it is a general positive indication that the prices of linens, surgical dressings, etc., will increase. The hospital buyer at once should take advantage of this condition, and secure an ample stock.

Next to buying at the right time, purchasing from the right firm at the right price is most important. I have considered this a secondary result of purchasing at the right time, because if purchased at the right time from the right merchant, it logically follows that the right price will be obtained. However, there are a few factors of price to be considered. Just what is the right price? Sometimes the cheapest price is not the right price. Perhaps unreliable dealers, ones whom past experience has branded as unreliable, may be the low bidders. Of course it is taken for granted that all are quoting on a previously determined standard. In this case, I feel that it would be a poor policy to buy from them. The lowest price would not be the most economical.

Another consideration about price is the matter of bargaining. Few reliable concerns will stoop to such ethics. If a purchasing agent forms this habit, he is bound to lose in the end. It is to be expected, that after a few such transactions, the salesman knowing of the habit, will state a price far above that which he originally expected to obtain so as to meet such a tendency of bargaining. In the end no good can come from such a method, and I need not point out the evil and the loss resulting from it.

The idea, of course, is as far as possible, to know the cost of the products to the manufacturer or the jobber, and to allow him a margin of profit which is fair. If you are in a position to obtain this knowledge, then you will know that you are buying at the right price. While we expect to take advantage of every low price offered, we must realize that we cannot expect a firm to continue to sell without a fair profit and still exist.

The right place can be determined only by experience. Records or previous quotations and purchases will enable the hospital purchasing agent to know who is in a position to supply a reliable quality at a fair price. Continual study is required to know the source of supplies. This knowledge will enable the purchasing agent to obtain products as near to their source as possible, and thus eliminate many extra handling charges. He will be prepared to obtain any required item with the least possible delay.

The last item in making a purchase which the hospital purchasing agent must consider, is buying the right quantity. This can very briefly be summed up by saying, that if the purchase is made at the right time and at the right price, from a reliable merchant, the amount ordered should be in keeping with a supply sufficient in quantity to carry the institution over until the market, or time, is again favorable for such a purchase. Past consumption records will enable the purchasing agent to determine what this amount should be, with an excellent degree of accuracy. No large amount of capital need be invested in such a transaction. If such were the case, it would prove prohibitive to every one of us, but contracts for a future delivery at certain intervals are welcomed by the merchant, and are entirely to the advantage of the hospital under such conditions. The consumer is protected against further advances, and the merchant who is aware of the exact amount which he must furnish will be able also to make arrangements to contract for this supply in advance. Such a procedure, as you can readily see, will tend to decrease the fluctuations in the prices of commodities. It will tend to eradicate the high peaks of prices—a condition that would be welcomed by both the consumer and dealer.

Plenty of Work

There are so many duties for the purchasing agent in the modern hospital, that his department might well be called the service department. The storeroom, all transportation, the inventory of all permanent or non-expendable property, the salvage of all waste or discarded material logically belong to his department. You need not fear that the purchasing agent will want for something to do.

In the future modern hospital administration, the purchasing agent will play an important role. His work will be considered as necessary as that of any other departmental head. He will relieve the superintendent of a great amount of detail enabling him to devote the time required by other phases of hospital administration. The adoption of scientific purchasing will aid in solving the administrative part of the hospital problem. It is hoped that the cost of the hospital day may thus be reduced. Since no scientific purchasing can be without standardization, the purchasing agent will assure the surgeon of a uniform type of supply and above all that the supply will be on hand when it is needed.

References

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The Organization of the Hospital

Executive and Advisory Bodies, Superintendent, and Staff[1]

Rev. Demetrius Tillotsin, Superintendent, Presbyterian Hospital of Colorado

THE subject which was first suggested to me was: "An Ideal Relationship Between the Executive and Staff Organization of the hospital." I requested that the subject matter might be changed to "A Working Relation Between the Executives and Staff Organization of the Hospital." One of my reasons for doing so is the fact that what is an ideal relationship in one institution might not prove to be ideal in another.

A Practical Organization

In hospital organization I have not sought so much to find what might be the ideal as I have to find that which would be practicable and workable in the particular institution with which I was associated. I think it will be evident to all that the same organization cannot exist in every type of hospital. For instance: the organization in the city hospital would probably be somewhat different from the organization in a state hospital, especially one where the chief function was teaching. Concerning neither of these types of institutions have I anything to offer, never having had experience with either of them excepting five years with a state tuberculosis hospital where there was no staff or outside physicians. There are plenty of men here who have had experience in state and city institutions and are far more capable of speaking on that subject than I.

Neither have I had experience with a hospital operated for profit and owned by a corporation or an organization of physicians and I am perfectly aware that the organization of which I shall speak would not be the type of organization which would be desired in an institution of that sort.

It has been my privilege for the past fourteen years to be associated with a denominational hospital built by the gifts of the people and primarily for the service of the patients. The object of such an institution is to place all facilities within the reach of physicians and in one great temple of healing, where all physicians of proper standing might have at least access to membership on the staff. The usefulness of an institution of this sort could be very greatly impaired by the same kind of staff organization which might prove very effective and very useful in some of the institutions I have mentioned above.

Personnel of the Staff

In the discussion of this question I shall confine myself entirely to the organization which I have found especially adapted to this type of hospital. We should first settle in our minds what is the primary object of such an institution. This we believe to be the best service possible for the largest number of patients. Such an institution is theoretically for the service of all physicians and surgeons who have been able to pass the standard requirements, such as graduation from a regular and reputable school of medicine, state license, and as an evidence of the above being satisfactory to the medical profession, membership in local medical societies and the American Medical Association. Whether the hospital is willing to accept the work of all physicians who might pass the above requirements would be a matter for the hospital organization to determine. There are always two situations that arise. First, men who prove themselves to be unfit for hospital service in spite of their having passed the above tests; and, second, men who try to do in a hospital that for which they are not fitted (but as one once frankly told me), because they need the money. The question of whether men are entirely capable of meeting the conditions, such as graduation, state license, membership in local medical society, etc., should be decided by the board of managers with such information as they can secure from the hospital workers. Every hospital superintendent knows how general the knowledge becomes around a hospital as to whether men do acceptable work or not. It has been the experience of the writer to have a poor piece of work in the operating room reported before the noon hour was over by the supervisor of surgery, the intern assistant, and the anaesthetist, all

[1]Read at the joint meeting of the Mountain States Conference of the Catholic Hospital Association and the Colorado Hospital Association, held at Colorado Springs, Sept. 21-22, 1926. Dr. Bronfin is Superintendent of the Sanatorium of the Jewish Consumptives' Relief Society.

of whom were watching such operations every day, and who were entirely competent to judge.

We have always required a monthly report from the supervisor of surgery as to the number of operations performed by each surgeon and also as to whether there were any infections developed after operation. When the board of managers are in doubt as to the efficiency of a man asking the privileges of the hospital, the matter might be referred to the medical advisory board. Not all physicians are without prejudice, yet there are some men who are above question in this regard, and so far as possible the medical advisory board should be made of broad-minded men who would not be governed by prejudice or controlled by jealousy.

Board of Managers and Superintendent

We have no doubt but there are a number of different organizations that work well but the one with which we have had practical experience has proved itself to be efficient for hospital purposes and satisfactory to physicians. It has been in use in a hospital for the past eighteen years and the efficiency of that hospital is indicated by its steady growth throughout that period. It was opened in May, 1908, with 65 beds; since that time it has steadily grown until it is today an institution of 350 beds, and had about 12,000 patients last year. I was connected with this hospital for about fourteen years as a member of the board of trustees and executive committee, then for some time acted as superintendent. The business of this hospital in the month of July last amounted to $60,000 cash receipts. Out of these years of experience we would favor an organization where the executive authority is solely vested in the board of managers.

Every well-organized hospital should publish in a convenient form its articles of incorporation and by-laws. The by-laws should be carefully prepared with a view of setting forth the authority of the board of managers, superintendent, other officers of the incorporation, and the medical advisory board.

The article defining the authority of the board of managers should contain something similar to the following: "The board of managers shall have full and complete authority in all matters relating to the management and operation of the hospital; the admission of physicians and surgeons to practice in the hospital; the employment, organization, and training of nurses; and the adoption of rules and regulations governing the management and operation of the hospital."

Another article should just as carefully define the authority of the superintendent. The importance of this will be recognized by every man who has had practical experience in a hospital where there are often conflicts of authority. The superintendent's power should always be subject to that of the board of managers and the by-law defining his authority should read somewhat as follows: "Subject to the direction and control of the board of managers, the management of the hospital shall be vested in the superintendent; all records and statistics shall be kept under his supervision. He shall report at each monthly meeting of the board of managers the condition of affairs and business of the hospital in such detail as the board may require. He shall admit and discharge patients in accordance with rules and regulations approved by the board of managers; shall countersign all bills, accounts, and pay rolls; shall have general supervision over the organization of the training school for nurses under the direction of the executive committee. When acting within the scope of his authority the superintendent shall in all matters pertaining to hospital administration represent the board of managers and shall be responsible to them only for the proper performance of his duties. It shall be the duty of the superintendent to enforce the rules and regulations for the proper conduct of the hospital made by and under the authority of the board of managers. The superintendent shall ex officio be a member of the medical advisory board but without any vote therein."

If it is desired that there should be an executive committee, who would meet more frequently than the board of managers and have in charge certain matters that might come up in the interim of board meeting, then it is important that their duties should be carefully defined and the by-law should read somewhat as follows: "The executive committee shall direct or control the affairs of the hospital during the interim of the meeting of the board of managers but subject to the action and supervision of said board. They shall keep a record of their proceedings and the same shall be submitted to the board of managers at its stated meeting. When said record is submitted and approved by the board of managers, the acts of the executive committee become that of the board of managers.

Medical Advisory Board

We believe there should be a medical advisory board which should be elected under a by-law somewhat as follows: "The board of managers shall annually elect a medical advisory board of not less than seven or more than 25 physicians and surgeons who are friendly to the hospital. Each member of the medical advisory board shall be a qualified medical practitioner in high standing and distinguished service in his profession and thoroughly familiar with hospital management and needs. The medical advisory board shall hold stated meetings at such times and places as it shall determine and shall elect annually a president and secretary. Five members shall constitute a quorum. Special meetings may be called by the president of said board, or by the president of the board of managers, or by the executive committee. To the medical advisory board may be referred all matters pertaining to hospital service: such as sanitation, laboratories, surgeries, medical service and interns; all recommendations of said board to the board of managers shall be in writing, signed by the chairman or secretary of said medical advisory board. The medical advisory board shall determine the professional qualifications of candidates for appointment as interns and shall nominate to the board of managers at least

two more persons each year than shall be necessary to fill vacancies by the departure of interns from the hospital. Such names shall be given to the board of managers in the order of the preference of the medical advisory board."

It is our belief that this medical advisory board should consist of at least eighteen to twenty members, or more if thought advisable, that they should be so organized that from their number there should be appointed the following committees: A committee on laboratory, obstetrics, surgery, nursing, and clinical records; this latter committee, being one of great importance, should be carefully selected.

At the monthly meeting of the medical advisory board reports and recommendations should be called for from each of these committees. These recommendations should be discussed by the entire board and if passed by the board should be put in writing and presented at the next meeting of the board of managers for their consideration. A medical advisory board, carefully selected from men who are friendly to the hospital, can be made very useful in many ways. It should be understood that their relation is advisory and yet in years of experience in an organization of this kind I have never seen more than one or two recommendations from a medical advisory board rejected by the board of managers. This seems a very effective way by which the superintendent can get needed changes and reforms presented to his board of managers. It has been my custom to present matters first to the medical advisory board for them to discuss and if adopted they go before the board of managers with increased weight.

The Staff Organization

The staff organization in a hospital should be entirely separate from that of the organization of the executive board. A separate constitution and by-laws should be adopted by them, it being necessary, of course, that there shall be no conflict in authority between the staff and executive organization.

Every physician seeking membership should be required to sign the constitution and by-laws in which there would be a pledge required by the American College of Surgeons not to practice the division of fees and at the time he signs the constitution and by-laws a surgeon should be asked to indicate what particular line of surgery he purposes to practice. We have found in Colorado a different condition in this regard from what we have been accustomed to elsewhere. In a number of years of experience with a hospital in an eastern state I noted but one occasion where a man attempted to do something that was distinctly out of his line of surgery. Here it seems that some men do almost everything. I have passed by the door of an operating room and seen a man operating on hemorrhoids and was greatly surprised to find that the next day he was scheduled for a tonsillectomy. This is one of the reforms that I believe ought to be brought about in hospital service in the state of Colorado.

I am particularly strong for the idea that the man, who is to do oral surgery, should be especially prepared for that type of service and that he should be able to present some evidence to the hospital that he is prepared for that type of service before undertaking it. In the operation of a hospital in Colorado, I feel I am somewhat following the old adage, "When in Rome do as Rome does," but I want to register my protest against the practice which I believe to be detrimental to the hospital, the medical profession, and to the patient.

The staff society should be practically independent and an organization itself. It should have no relation to governmental affairs in the hospital except the advisory relation which certain of its members may have through the medical advisory board. The staff society should hold regular monthly meetings where they discuss the clinical results of their work in the hospital. A stenographic record of these reports and discussions should be kept and published at the end of the year. It has been our custom to send this report to all physicians within the patronizing territory of the hospital and to all ministers of the denomination to which the hospital belongs.

During the time when the preparation of this paper was under consideration, I wrote Dr. Martin, secretary of the American College of Surgeons, for sample copies of executive and staff organizations in various hospitals and while these differed in many respects and in some instances the principal emphasis was laid upon the executive management vested in the board of managers and in other staff organizations yet it would seem from these reports that the general practice of hospitals throughout the country is not very different from that presented above and that there is a gradual tendency to centralize authority in the board of managers.

I would also call your attention to a suggested constitution and by-laws for the organization of new hospitals published in the "Modern Hospital Year Book, Fifth Edition." The difference between that organization and the one which I am recommending being the fact that they do not recommend a medical advisory board.

I think we are all ready to admit that changes in hospital organization are being constantly made and that while we will never find an organization that would be ideal in every community and under all circumstances, yet we are approaching the organization which will avoid the greatest amount of friction and at the same time bring about the largest amount of efficiency in hospital administration.

Walter Reed National Memorial

The home of Walter Reed at Belroi, Virginia, has been acquired by the Walter Reed Memorial Commission of the Medical Society of Virginia and dedicated as a national memorial. The Woman's Club of Gloucester County will have custody of the property. At the dedication exercises, Oct. 15, Dr. Lawrence T. Royster, of the University of Virginia Medical School, spoke on "What Walter Reed Means to Medical Research," and Col. Jefferson R. Kean, U. S. Army, retired, spoke on "Walter Reed as a World Hero."

Modern Methods of Teaching Anatomy to Nurses

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WHILE studying anatomy at Johns Hopkins Medical School I noticed one of my classmates used as a textbook one of the first editions of Gray—about fifty years old—and upon being upbraided about using such an old work on the subject by a third party the student replied: "The human body has not changed one iota in fifty years. An anatomy book written then is O. K. now." Probably the human body has not changed any since the time of Moses except in the development of different groups of muscles due to various modes of living; however, hardly a decade goes by but some new truths concerning the intricacies of various organs are discovered. Only in the past few years have we begun to learn with the aid of the fluoroscope and X-ray, the startling truths about the normal position in the erect posture of thoracic and abdominal viscera.

So commonly accepted are the established beliefs of the location of these organs that, even when the statements are illogical and unscientific, the teachings are accepted by scientific workers for many generations. Though the illustrations in textbooks are supposed to show the correct location of the viscera, in the erect posture, they are based on the study of these organs in material embalmed in the horizontal. As stated above, the X-ray and fluoroscope in the past few years, have demonstrated the fallacy of such anatomical illustrations.

Now it is just as easy in any well-regulated hospital with modern roentgenological equipment to teach nurses the correct topographical anatomy as it is to instruct from erroneous textbook illustrations or from dissected cadavers with distorted organs. In fact, I believe, it is considerably easier and certainly more interesting to teach the position of thoracic and abdominal viscera by this modern method because the experience of actually visualizing the positions and movements of viscera in living beings through the fluoroscope produces more lasting impressions.

What is visualized often is easily remembered. It is thus not difficult to teach the contiguous structures of external landmarks of the body; for many bone protuberances and prominent muscles and exposed joints are easy to feel, to see, and to demonstrate. The difficult feature in teaching anatomy is to have the student learn the true structure and relations of internal organs that are most difficult to visualize by the older methods of teaching. For instance: in practically all textbooks of anatomy the stomach and transverse colon in the abdomen lie crosswise above the umbilicus; whereas, with the bismuth-test meal and the fluoroscope, one soon finds (1) that in the majority of normal humans the greater curvature of the stomach and most of the caudal part of the transverse colon lie well within the iliac cavity of the pelvis, the excursion of the stomach being greater in the female than in the male; (2) that the liver changing from the horizontal to the vertical often has an excursion in its caudal portion of seven centimeters; (3) that the sigmoid flexure of the colon lies in the pelvic cavity; (4) and that the duodenum is seldom placed as all textbooks state it should be.

Again, in the chest, the textbooks picture the heart with a cone-shaped apex swerving to the left about one centimeter inside of the nipple line; whereas with the fluoroscope we find a large number of normal hearts, with the apex nearer the line of the left sternal border and with the auricles at the base of the cone lying more to the left than pictures demonstrate, so that the axis of this cone is almost horizontal rather than oblique. We may find in two chests of the same circumference on exhalation a marked difference in degree of expansion from one to five inches, and yet the lungs in these various extremes may all be normal.

Another department of anatomy that is difficult to teach with the older methods is the arrangement and articulation of groups of small bones, as well as the movement of ball and socket, hinge and synchondrosal joints. These topics can be easily taught in the living subject by means of the fluoroscopic screen; as, for instance, on the one hand, the carpal and metacarpal bones of the hand, the tarsal and metatarsal of the feet, the phalanges of both; and on the other, the shoulder, elbow, the hip and knee joints, the articulations of the vertebrae in the turning and bending of the head and body, and the slight movement of the bones of the pelvis.

In these living graphic studies, impressions are formed among students that are lasting, the teachings are true to nature and to fact. In these observations of the living, regions that heretofore have been obscure and taught incorrectly are brought to light; and in the actual visualizing of the size, location arrangement, and action of living organs one not only offers a very interesting modern method of teaching anatomy, but also teaches some modern truths in human physiology as well.

Christmas Seals

Purchase Health

The National Tuberculosis Association is conducting its 20th anual sale of Christmas Seals. Largely through the work of this association the death rate from tuberculosis has been reduced more than 50 per cent.

THE EDITOR'S PICTORIAL NOTEBOOK

Lobby, St. Mary's Hospital, San Diego, Calif.
Operating Room, St. Mary's Hospital, San Diego, Calif.
Headqaurters of College of Hospital Administration, Milwaukee, Wis.
Ultra-Violet Observatory, Desert Sanatorium, Tucson, Ariz.
New Nurses' Home, Misericordia Hospital, New York City.
Misericordia Hospital, Milwaukee, Wis.
Street Scene in Santa Monica, Calif.
Children's Ward, St. Mary's Hospital, San Diego, Calif.
Street Scene in Salt Lake City, Utah.

St. James Hospital, Chicago Heights, Ill.

Elmer W. Reading

THE new St. James Hospital, located at the junction of the Lincoln Highway and Illinois Highway 22 at Chicago Heights, Ill., 32 miles southeast of the city of Chicago, was opened to the public June 15. The structure represents a cost of about $500,000. Herman J. Gaul of Chicago was the architect.

General Construction

The building is fireproof, of steel and reinforced concrete finished with rough-texture red brick laid in white cement and trimmed with Indiana limestone. As shown in the illustration, it has a height of six stories, including the ground floor. In addition to these, there is a basement. The five-story wing on the east is an older building so worked into the plans that the whole presents a uniform appearance, the photograph showing much more difference than one notes in viewing the building itself. Each floor has a sunroom at the west end fitted with cushioned wicker furniture. These rooms are used by patients and visitors.

ST. JAMES HOSPITAL, CHICAGO HEIGHTS, ILL.

The general impression the visitor has of the new St. James Hospital is that plenty of room has been allotted to each department. Some of the private rooms are so large that they could be used as six- or eight-bed wards, and all of them are a little larger than necessary. Probably the latter could, in an emergency, be used as two-bed wards. The population of Chicago Heights contains a considerable proportion of factory workers of various nationalities. Many of these folks, although they are not wealthy, demand a hospital room large enough to accommodate a considerable number of visitors. The present capacity of about 150 beds could probably be increased to 200 by converting private rooms into wards. The main kitchen on the ground floor and the diet or serving kitchens on each floor are all very large to provide for a future addition to the building.

Interesting Entrance Arrangement

A very attractive entrance arrangement gives access to both the ground floor and to the first-floor lobby and office. The main entrance is two stories in height. The partition separating the entrance space from the ground-floor corridor extends about three feet above the first floor, forming a balustrade. To the right and left of the ground-floor entrance, stairs lead to the lobby on the first floor.

Opposite the stairs and to the left is the office and telephone operator's desk, separated from the lobby only by a marble-topped counter. A sunroom is on the left of the lobby and a small parlor on the right. The walls of the entrance, stairways, and lobby are very pleasingly finished with a wainscoting of yellow, mottled, Minnesota stone trimmed with gray marble.

Lower Floors

On the ground floor, in the west end of the building, is located the emergency receiving department consisting of receiving room, bath, operating room, sterilizing room, and doctors' scrub-up room. These are adjacent to the elevator and to the entrances on both the north and west of the building. On this floor are also the main kitchen, and the dining rooms for Sisters, nurses, chaplain, and visitors.

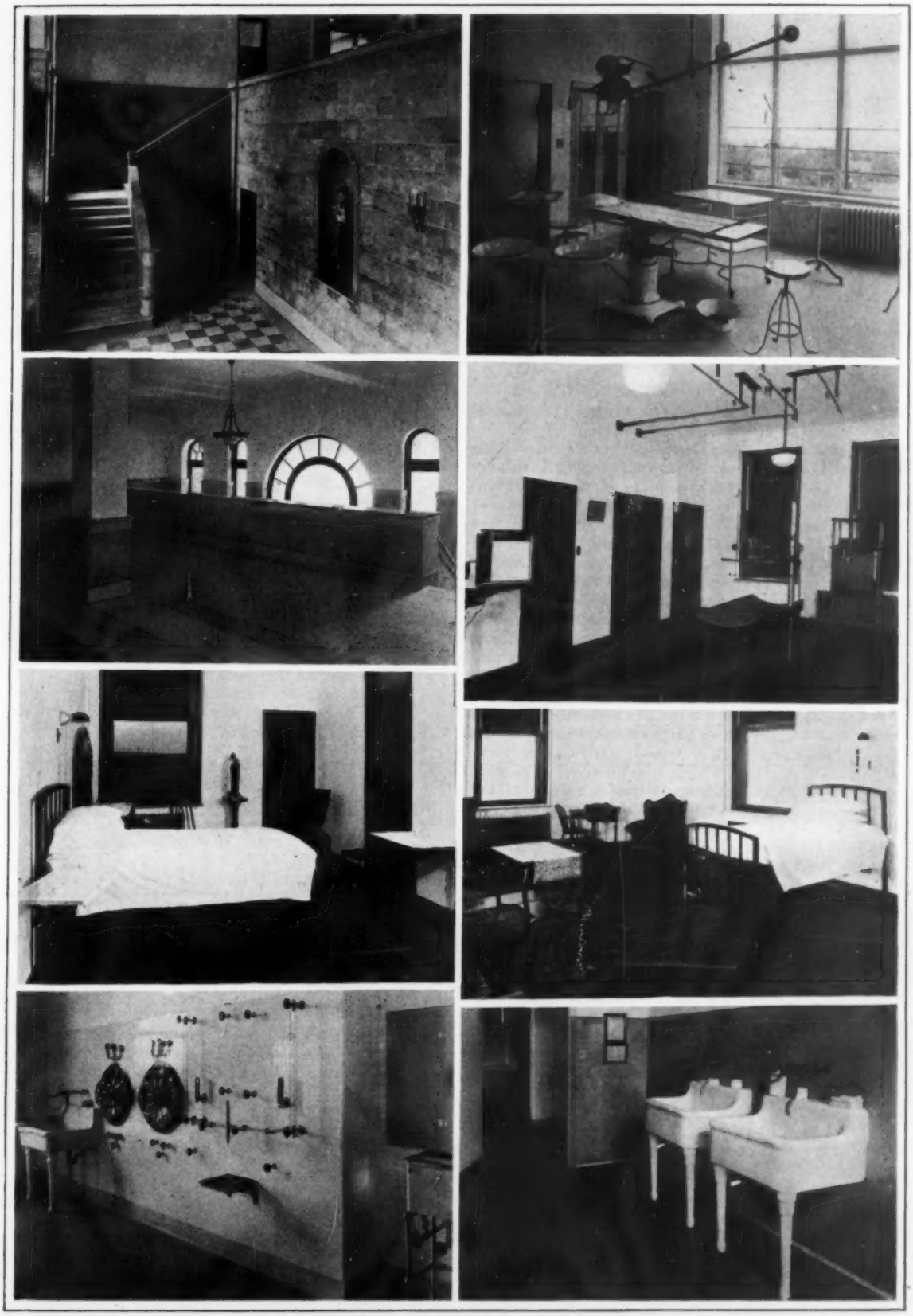
On the first floor, besides the office, are a small chapel, a chaplain's room, private patients' rooms, and men's wards. The second and third floors are devoted to private rooms and small wards. The wards contain two, four, or six beds, four being the prevailing number. A bath and toilet room is placed between each two wards. Some of the private rooms are fitted with private bath and toilet.

The private rooms are furnished with a bed, dresser, writing table, chairs, small rugs, and a built-in clothes closet. The floors are of hardwood over concrete with a layer of deadening felt under the wood. Thus there are no squeaky floors in the building.

Each of the utility rooms is provided with a work table, galvanized washtub, porcelain slop sink, gas stove, galvanized dryer heated by high-pressure steam, utility cabinet with wooden doors, clothes chute, dust chute, and an opening to the waste incinerator. The floors are of terrazzo and the walls are plastered. The corridor floors have a terrazzo border with cork-composition center.

Maternity and Surgical Floors

The fourth floor, intended for maternity patients, is provided with private rooms and small wards similar to those for the general patients. The operating rooms on the top floor of the old wing and on a level with the new fourth floor have been altered to fit the needs of this department. A large nursery room is provided with a window through which visitors may look at, but not touch the



ST. JAMES HOSPITAL, CHICAGO HEIGHTS, ILL.

Main Entrance Hall — Lobby Above Main Entrance — A Surgery — An X-Ray Room
Private Room — Sterilizer — Large Private Room — Scrub-up Sinks

MAIN ALTAR IN CHAPEL,
ST. JAMES HOSPITAL, CHICAGO HEIGHTS, ILL.

babies. Two utility rooms and two dressing rooms complete the plans of this floor.

The entire fifth floor is given over to surgical operating and accessory rooms, the pathological laboratory, and the X-ray department. There are two operating rooms for clean cases, one for infected cases, and an eye, ear, nose, and throat room. An adjustable shadowless lamp furnishes light above the operating tables and large windows extending to the ceiling provide an abundance of sunlight; there are no skylights in the new building. A suction apparatus for draining wounds is conveniently placed in the wall of the operating rooms. The floors of these rooms are of terrazzo and the wainscoting of gray marble.

The sterilizers of the built-in type are located between two operating rooms. They have terrazzo floors and white brick-tile wainscoting. Steel built-in instrument cases are in the operating rooms or in the corridors just outside. The scrub-up sinks are provided with elbow control for the water flow. These rooms have terrazzo floors and gray-marble wainscoting. The blanket warmers are heated by steam. The blankets are placed on large metal hooks or brackets. In this way they are warmed more uniformly than if they were on wire shelves.

Modern X-ray Department

The X-ray department is well equipped with the most modern apparatus for diagnostic work, including an upright machine for radiographing the chest. The windows in the fluoroscopic room are made absolutely lightproof by rolling shades constructed exactly like the cover of a roll-top desk. In addition to the apparatus found here, the hospital has equipment for radiotherapy in a special department for that purpose.

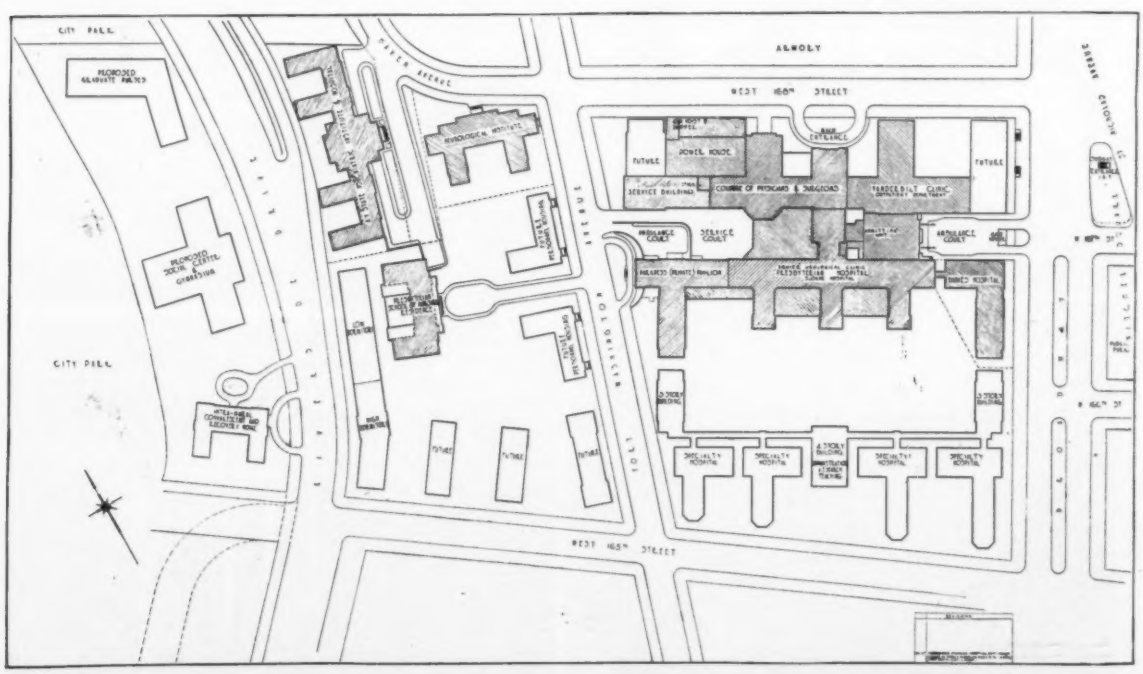
The laundry, garage, heating plant, and refrigerating plant are located in a separate building in the rear of the hospital. This building is also, at present, providing sleeping rooms for some of the employees.

Light Signals

Each bed is provided with a signal light. The patient's signal switches on a red light over his door, one at the nurse's station, and one in the office on the first floor. Thus the office attendant can assist in obtaining prompt service for the patients. The doctors are called by telephone from the office.

The pharmacy, in charge of a Sister who is a registered pharmacist, is equipped with the latest style of drug cabinet. The drugs are kept in swinging drawers properly labeled. The bottles and packages are not exposed to view and are kept clean and in orderly arrangement.

St. James Hospital is operated by the Sisters of St. Francis Seraph of Perpetual Adoration, whose motherhouse is located at Lafayette, Ind. The Sisters with the aid of a few graduate nurses do all the nursing. About 28 doctors are practicing at the hospital. An intern and a Sister technician complete the hospital personnel.



MEDICAL CENTER, NEW YORK CITY.

Shaded portions represent buildings planned or now under construction. Ground was broken Oct. 19 for the new $1,750,000 building of the Neurological Institute. Joint Administrative Board, 17 East 42nd Street, New York City.

The Air Your Patients Breathe

A Practical Method for Humidifying and Partially Sterilizing the Air of Heated Buildings*

Edward C. Rosenow, M.D., Division of Experimental Bacteriology, The Mayo Foundation, Rochester, Minn.

THE need is becoming generally recognized for maintaining during cold weather proper relative humidity of the air in artificially heated houses, schools, hospitals, and offices.

After an exhaustive study of this problem, Huntington concludes, "The evidence that health could be much improved by proper humidity seems overwhelming; so, too, does the evidence that the human organism is amazingly sensitive to slight changes in the atmosphere." He further points out that during the war the patients with influenza who were compelled to remain in tents hastily erected on muddy ground fared better than those in the regular hospitals, an observation made by others in connection with measles and other diseases of the respiratory tract. A study of many thousand postoperative deaths in relation to humidity leads him to believe that if a proper relative humidity were maintained in hospitals such deaths might be reduced by twenty per cent. Greenberg has found that "a high relative humidity is a more favorable condition for a low pneumonia death rate than is a low relative humidity."

Meier agrees that proper humidity is of importance, but is inclined to emphasize the dust factor to which lack of humidity leads, as follows: "Extreme dryness may cause irritation and predispose to illness, often also direct harm to patients, but, in general, the great mischief is probably due to dust which is raised by the hot air and is the means of spreading bacteria and infection."

The increased prevalence during cold weather of colds, bronchitis, and other respiratory infections in temperate climates begins each year simultaneously with the artificial heating of buildings. There are good reasons for believing that the incidence of these infections could be materially lowered if a proper degree of humidity were maintained. By actual experiment, Mudd, Goldman, and Grant demonstrated the deleterious vasomotor effects of chilling of the body surface, by rapid evaporation of water from the skin in excessively dry-heated air which predispose to infections of the nasal and postnasal cavities.

Specialists in diseases of the skin and of the nose and throat recognize the harmful effects on the skin and nasal surfaces of the excessively dry air of winter in heated buildings with little or no provision for supplying moisture. Health authorities emphasize the great need for supplying moisture to the air of heated buildings, from both the health and economic standpoints.[1, 2]

Normal humidity would prevent shrinking and warping of woodwork and furniture and undue drying and deterioration of expensive draperies and book bindings, preserve decorative plants, and effect a material saving in fuel.

*Submitted for publication September, 1927.

Heating engineers recognize the need for moisture but, owing to difficulties in supplying it, have concentrated their efforts on improving the methods of heating without sufficient regard for the question of humidity. While there is general agreement on the need for moisture in artificially heated buildings, there is far less understanding as to how adequate moisture may be provided. Few realize how great a quantity of water is required. Lyon has shown that in cold weather the air in a modern heated house or office becomes dryer than the air of the desert. The air of an ordinary-size double-window house of 10,000 cubic feet changes completely about fifteen times a day: to keep the air half saturated with moisture during cold weather requires the evaporation of fifteen gallons of water each day.

The problem of indoor air in cold weather is not so much a question of lack of oxygen and accumulation of carbon dioxide as one of adjustment to the heat regulatory mechanism of the body. The capacity of air for water in the form of invisible vapor, and hence its capacity to abstract water from moist surfaces, is directly proportional to the temperature. The drying effect of the already dry excessively cold air of winter is multiplied many times in heating it to the ordinary temperature of indoors. Since the body loses heat at the usual temperature of rooms through evaporation of water from the skin and mucous membrane, dry air, even at 75° F., often feels chilly, while the air in a room at 68° F. with a normal relative humidity of from 40 to 55 per cent feels comfortably warm to most persons. The lack of moisture in the air thus becomes an important cause of the overheating of houses.

I became especially interested in devices for maintaining humidity indoors after the completion of our new house six years ago. The air heated by the hot-water radiators became excessively dry. Nasal affections of the occupants occurred and the excessively heated air (74° to 78° F.) felt chilly.

All of the humidifying devices on the market at that time had and still have serious objections. The capacity of most of them, including the open pans and those incorporated in radiator shields, are far from adequate in cold weather. Others, such as spraying devices, have for the most part the same objections, and those supplying moisture adequate for a given room waste water, demand too much attention and require special means for distributing the moisture.

Any method to be practical and efficient must take into account the fact that during the heating season the need for moisture from day to day and from month to month varies widely, from little or none to many gallons a day. The moisture in the air occurs normally in the form of vapor or gas. From the laws governing the

FIG. 1. DR. ROSENOW'S HUMIDIFIER, SHOWING BLOTTING PAPER SUPPORTED BY COILED WIRE.

diffusion of gases it follows that it is as impossible to humidify the air of a house properly from one source as to heat it from one source. To heat buildings uniformly the need for a source of heat in each room is well recognized.

To humidify the air properly over the wide range of conditions encountered, the source of moisture must be related to the heating system, so that evaporation becomes automatically proportional to the amount of heat radiated, and inversely proportional to the amount of moisture already in the air. The currents of air produced by the heating units cause the moisture to be distributed exactly as is the heated air.

Besides the efficient evaporation of water a practical humidifier must have a number of other requisites. It should be supported by and improve the appearance of the radiator . It should protect wall and draperies from soiling by the overheated, dust-laden, smoky air rising from behind the radiator. Moreover, since a uniform degree of humidity throughout a building can be maintained only when, as in steam and hot-water systems, the moisture and heat come from the same place in proportional amounts, each radiator, at least on the first floor of the ordinary-size house should be equipped with a humidifying device. This device must needs be simple and relatively inexpensive.

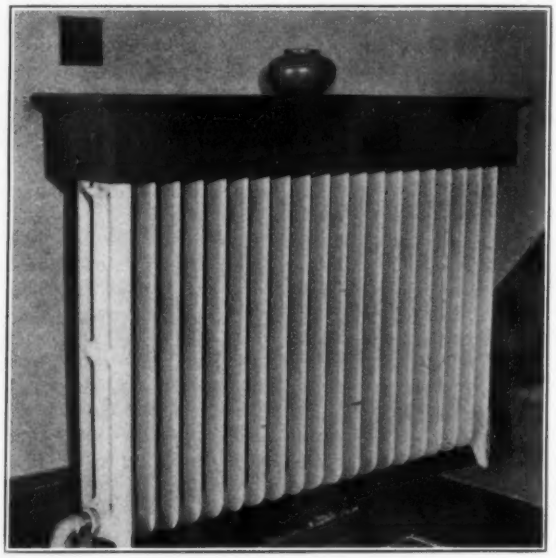


FIG. 2. DR. ROSENOW'S HUMIDIFIER IN POSITION, SHOWING THE METAL OR WOODEN CASE WITH HOLES THROUGH WHICH THE MOISTENED AIR PASSES INTO THE ROOM.

It is generally thought that water to be evaporated must be heated, boiled or sprayed on the steam coils. This idea is erroneous and is contrary to what occurs in nature. In the method to be described, adequate capacity for evaporation of water is obtained by exposing a sufficiently large number of moist surfaces to the dry-heated currents of air from radiators or other heating units, thus simulating the way water is brought into the air in nature.

Description of Humidifier

A sufficiently large total area of moist surface is obtained by increasing greatly the surface of water in a pan (within a neatly-made box fitted over the radiators) by means of many highly absorbent vertically placed sheets of paper (Fig. 1). The great amount of water evaporated keeps the water and moist surfaces relatively cool and hence bacterial growth is kept at a minimum.

The humidifier, which has been tested for six heating seasons, consists of a pan of water with augmented evaporating surface, enclosed by a decorative box of hardwood lumber or of sheet iron, fitting over the top of the radiator (Fig. 2). Adequate exit for the humidified air as well as ornamentation of the long front panel exposed to view is provided by the simple, inexpensive scheme of drilling numerous holes in regular pattern. The diameter of each hole is 0.5625 inch, the rows are 0.075 inch apart, and the holes alternating are 0.75 inch apart, the center of the first row 0.75 inch from the top of the box. The sides of the box are 0.625 inch and the lid 1.125 inch thick. The inside length and width are equal to the length and width of the radiator. The lid is hinged at the back, and a cone molding (0.375 by 0.500 inch) is nailed to its under surface to fit loosely over the upper edge of the box. In this way any possible slight warping does not become apparent. The height of the box from the top of the radiator to the under surface of the lid is 5 inches. At the back an apron made of three-ply veneer or of sheet iron extends to the lower edge of the radiator. Several crosspieces of wood or metal of proper dimensions are fastened on the inside of the box so that the under surface of each engages the hollow of the radiator sections (Fig. 3). These serve as a support for the evaporating pan and as a means of fastening the device securely to the radiator. The fastening is done by passing long-threaded screw bolts through properly placed holes (about 1.5 inch from each end) head upward, passing the nut end through a link on one end of a chain, securing this with the nut, bringing the free end of the chain around the connecting part of the radiator coils, securing this with the nut of the opposite screw bolt, and by means of a screw driver drawing the chain securely into place (Fig. 3). The inside of the box, including the under surface of the lid and the sides of the holes, is well coated with a waterproof varnish. The outside is finished to match the interior woodwork.

The evaporating pan, made of copper, is 1.5 inch deep, 0.25 inch less in length than the inside length of the box, and, for a radiator 9 inches wide, 7 inches in width. A strip of galvanized sheet iron 7 inches by 1 inch is soldered crosswise, 0.5 inch from the bottom and flush with the top 3 or 4 inches from the end containing the float valve to hold the spring coil in place. The pan is placed close to the front wall of the box, leaving a space of 2 inches between it and the back wall (Fig. 3). The dry, heated air is thus trapped and a constant current is made to pass over the surface of the water in the pan and between the numerous moist absorbent sheets (Fig. 3). An inexpensive but highly absorbent blotting paper, cut to convenient size and folded, has been found satisfactory. After other devices were tested the simple method of supporting the blotters by a coil of wire (Fig. 1) was found highly satisfactory. A folded blotter placed over every second coil provides to each linear inch four moist surfaces 7 inches by 3.5 to 5 inches, depending on the depth which is exposed to the excessively dry-heated currents of air. The dry-heated air which is directed into the humidifier along the apron at the back becomes saturated with moisture as it passes over the surface of the water in the pan and between the saturated blotters.

The large amount of water evaporated made filling the pans by hand an irksome task. Obviously the water cannot be taken from radiators supplied by hard water but must come from the general water supply; lime deposits would quickly clog the heating system. Daily attention would be required to fill the pans with a hand valve from small pipes leading to the radiators. Fitting each pan with an overflow pipe and a drip valve set to supply sufficient water for cold weather would be a wasteful method because less water is required during mild

weather. A small inexpensive float valve to control automatically the water level in the pan is indispensable. Several types of valves have been tried and found unsatisfactory, but a type of needle valve, the full capacity of which is far less than that of the overflow, has been successfully used for several years.

The height, width, and length of the humidifier may be varied to correspond to the dimensions and location of the radiator. The evaporation chamber prevents the cover from becoming hot and is far more efficient for preventing undue heating of window seats commonly placed over radiators than the methods ordinarily used by architects. A space of 3.5 inches between the top of the radiator and the under surface of the window seat is sufficient.

It is maintained that placing inclosures over radiators and causing the air to be trapped and converting vertical into horizontal currents, as is done by this device, reduces their heating capacity. However this may be, it has not been noticeable in my house and the good that comes from the added humidity more than compensates for such a loss.

The method as described is not applicable to cabinet heaters, However, if highly absorbent thin sheets of paper are made rigid by pasting one sheet on each side of the ordinary metal screen with water-insoluble glue, it has been found possible to transport water effectively not only

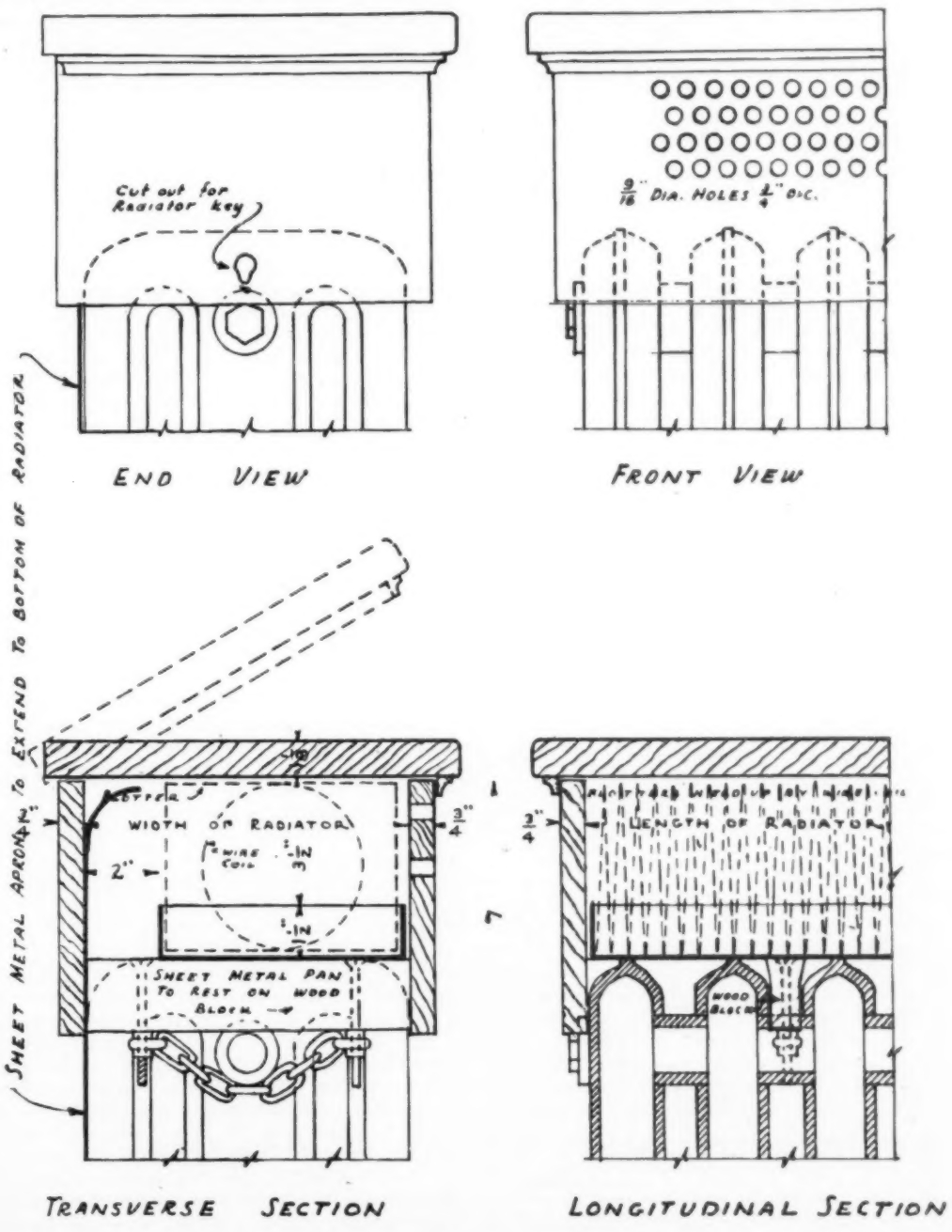


FIG. 3. WORKING DRAWINGS OF DR. ROSENOW'S HUMIDIFIER, SHOWING CONSTRUCTION AND MANNER OF ATTACHING TO RADIATOR.

vertically above the surface of the water but horizontally far beyond its confines. In this way a narrow pan suffices and makes water available for evaporation by vertical as well as horizontal currents of air and, through the use of the stiffened absorbent units, the method becomes applicable to cabinet heaters, to the side (front or back), and to the top of ordinary radiators. The saturated, stiffened, absorbent sheets cannot be made to drip water either by subjecting them to extremes and sudden changes of temperature and humidity or by placing them in contact with nonabsorbent surfaces. They will drip water only if the lower edge of the outer limb is brought to a lower level than the surface of water in the pan.

A narrow pan placed longitudinally within cabinet heaters or at the side or top of radiators to hold suitably shaped absorbent units would provide adequate moist surface for evaporation without perceptibly reducing their capacity for distributing heat.*

Functioning of Humidifier

Every method of humidification has to deal with the difficulties which arise from liming, for nearly all water used for domestic purposes has some degree of hardness. In my method this is effectively dealt with by using inexpensive absorbent material, paper instead of cloth, which at little cost can be replaced once or twice a year, depending on the degree of hardness of the water evaporated.

Besides presenting adequate moist surface for evaporation of water, the absorbent sheets were found to function in another manner. Soon after the installation of the humidifiers, a marked reduction in the deposit of dust and lint on furniture was noticed. Much of this was found on the absorbent sheets. Experiments were performed by causing dust-laden air to pass through the humidifying units; by means of indirect illumination, many particles of dust could be seen drawn to the moist sheets of paper as if by magnet. This observation led to the novel idea that since bacteria in the air are attached to dust particles, and a large proportion of the air in rooms circulates through the heating units, partial sterilization of the air could be accomplished by adding a nonvolatile antiseptic to the water in the pan which would be drawn into the absorbent sheets by capillary attraction, kill the bacteria deposited with dust, and thus keep the water in the pan and absorbent sheets free from odors and in a sanitary condition. The forces which cause the dry particles of dust to deposit on the moist surfaces of the absorbent units and water in the pan are multiple and still obscure but of these, wetting and differences in electrical charge of particles and moist surfaces are perhaps the most important.

To determine whether the number of bacteria in the air was materially reduced, tests were made by puffing dust into the air behind the radiator and drawing through broth culture mediums under comparable conditions the dust-laden air immediately before it entered and after it left the humidifier. The number of bacteria trapped in this way was determined by plating equal amounts of the broth on agar plates and counting the colonies. Great variations in the bacterial count were noted, but on repeated tests it was found that the average bacterial content of the air was reduced by one half as it passed between the moist surfaces of the blotters and over the water in the pan.

During a series of test periods in my house, of approximately 30,000 cubic feet capacity, twelve of these humidifiers, presenting a total area of moist surface of approximately 140 square feet, evaporated daily from five to thirty gallons of water, depending on the weather. The physical comfort experienced after the installation of the humidifiers during midwinter in 1922 was striking. The deposit of dust on furniture became noticeably less; nasopharyngeal irritation of occupants noticeable for weeks previously, disappeared.

Hygrometer readings, and from them calculations of the degree of relative humidity, have been made at frequent intervals during six successive heating seasons in my house, and, as controls, in other houses and buildings not equipped with humidifiers, as well as during the summer seasons. The tests included every sort of weather condition, both as regards temperature and humidity, and a wide range of temperature required in radiators, from none at all to that necessary on days with the weather outdoors at 30° below zero.

The humidity at no time during the six heating seasons becomes as great as occurs during rainy, humid days in summer, or sufficient to result in precipitation on the outside walls or excessive frosting of double windows. The air feels comfortably warm at from 65° to 70° F. and becomes uncomfortably warm above 70° F.

The average temperatures and relative humidity observed during six years are summarized in Table 1. It will be seen that the average relative humidity of summer during the six years in the different buildings ranged from 56 to 70 per cent, the total average being 63 per cent. The average for dry sunshiny days was 56 per cent. The average relative humidity during each of the six heating seasons in the humidified residence remained consistently within normal limits, ranging from 48 to 51 per cent, and averaging 50 per cent, whereas for the buildings not equipped with adequate humidifying methods it was far less, ranging from 24 to 34 per cent, and averaging 28 per cent. The average relative humidity of 34 per cent (line 5, Table 1) was obtained in a house in which humidification was attempted by spraying water into the air.

Owing to the fact that evaporation in the humidifiers is inversely proportional to the amount of moisture already in the air and directly proportional to the amount of heat radiated, the humidity did not become excessive during mild relatively moist weather such as occurs in March and April, and approximated the physiologic optimum of 40 to 50 per cent during such extremely cold weather as occurs in January and February. How little water is evaporated with no heat in the radiators, and how much with much heat, is shown by the fact that it has taken from three to five weeks for the water in the pans to evaporate after heating is discontinued and the water supply turned off, whereas in the heating season during test periods from one to three fillings each day were required, depending on the temperatures of the radiators.

In Table 2 it is shown that during the six years of operation the average dry-bulb temperatures in my residence equipped with humidifiers during March and April when little artificial heat was used was 69° F., and the average relative humidity 53 per cent. During January and February, with much artificial heat, the average temperature was 70° F., and the average relative humidity 49 per cent. This is in sharp contrast to the average temperature and relative humidity found in buildings not equipped with humidifiers. The temperature here averaged 74° F. and the relative humidity 27 per cent during March and April, and 76° F. and 23 per cent during January

*Troublesome details in the practical application of this method by architects have arisen which require expert knowledge. The Arctic Nu-Air Corporation, Minneapolis, Minnesota, has agreed to supply architects and builders detailed information concerning the antiseptic found most satisfactory, and the humidifying elements required in houses and other buildings in which architects prefer especially designed humidifiers to harmonize with distinctive decorative schemes. This corporation is also manufacturing the complete humidifier in which the principles laid down are effectively incorporated and in which the need for the overflow drain pipe is eliminated through the use of an auxiliary trip valve in addition to the float valve.

and February. The extremes of relative humidity observed during March and April in my house equipped with humidifiers ranged from 48 to 60 per cent, in the buildings without humidifiers from 20 to 34 per cent. During January and February it ranged from 40 to 55 per cent in the former and from 22 to 25 per cent in the latter.

Summary

A practical method of humidifying and at the same time partially sterilizing the air in artificially heated buildings has been developed and the beneficial results, especially as pertains to health, are emphasized. Tests made during all sorts of weather and other conditions over a period of six years show that the relative humidity does not become excessive during mild damp weather, and that the normal range is approximated throughout the heating season, even on dry days as cold as 30° below zero. This wide range in function is the result of bringing the currents of air produced by heated radiators into contact with a large area of moist surface, thus making evaporation of water continuously proportional to the amount of heat radiated and inversely proportional to the amount already in the air, an essential requirement of any system of humidification.

The method lends itself to a wide range of conditions, for by simply varying the number or size of the absorbent units almost any needed degree of humidity may be obtained. Hence, it is suitable for different climates and for buildings constructed of various types of material. The method can be incorporated into various decorative schemes, saves fuel, is easily installed, is automatic, requiring little or no attention, and the essential features are inexpensive. The newer idea by which the water is not only lifted vertically but carried horizontally beyond its confines in the pan by the simple yet novel means of the stiffened absorbent sheets makes it applicable to almost any type of radiator, for cabinet heaters now coming into vogue and for unit heaters in which the air is driven through the heating elements by means of blowers. The capacity of the absorbent units to absorb and lift water and to hold the dust is almost unlimited and has been found adequate for a whole heating season for water even of excessive hardness.

The objections to the wick system as used in the past, such as the necessity of pouring water into the pan and the unsanitary and stagnant condition of the water and absorbent units, due chiefly to inadequate capacity, have been overcome by an automatic valve to control the water supply, by greatly increasing the evaporating surface, thus tending to keep the absorbent units and the water cool and hence retarding bacterial growth, and by adding to the water a nonvolatile odorless antiseptic which by killing the bacteria in the trapped dust and dirt, partially sterilizes the air.

The method is described and brought to the attention of sanitarian architects and heating engineers because it is believed that its wide adoption would effect a substantial annual saving in fuel and materially lower the incidence of respiratory and other diseases and increase the comfort and general welfare of those breathing the air in buildings so equipped. The present-day practice of heating, often as high as 100° in the excessive dry, cold air of winter, with no provision for adding moisture and reducing dust and dirt and hence germ content, is not only wasteful and out of harmony with the other great advances in heating methods and with the beautiful furnishings of many otherwise modern buildings, but from the standpoint of health, actually harmful and no longer necessary.

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TABLE 1

Average Temperature and Relative Humidity of Air in Buildings During Six Winter and Summer Seasons

Year	Season	Residence with Humidifiers: Thermometer Readings, Degrees F. Dry Bulb	Residence with Humidifiers: Thermometer Readings, Degrees F. Wet Bulb	Residence with Humidifiers: Relative Humidity, Per Cent	Buildings Without Humidifiers: Thermometer Readings, Degrees F. Dry Bulb	Buildings Without Humidifiers: Thermometer Readings, Degrees F. Wet Bulb	Buildings Without Humidifiers: Relative Humidity, Per Cent
	*Winter	68	58	52	74	55	26
1922	†Summer	71	65	70	..	..	..
	Winter	68	57	48	76	55	24
1922–23	Summer	71	62	59	..	..	..
	Winter	69	59	52	73	56	34
1923–24	Summer	73	65	64	..	..	..
	Winter	68	57	48	76	56	28
1924–25	Summer	71	64	66	72	64	72
	Winter	69	52	50	74	57	31
1925–26	Summer	70	60	56	69	58	56
	Winter	70	59	51	77	58	27
1926–27	Summer	70	63	59	..	..	..
Total	Winter	69	57	50	75	56	28
1922–27	Summer	71	63	62	71	61	64

*Winter includes period during which artificial heat was used.
†Summer includes period without artificial heat.

TABLE 2

Temperature and Humidity of Air in Buildings During Moderately Cold and Extremely Cold Weather

Observed Condition	Residence With Humidifiers 1922-1927: March and April	Residence With Humidifiers 1922-1927: January and February	Buildings Without Humidifiers 1922-1927: March and April	Buildings Without Humidifiers 1922-1927: January and February
Range of temperature (°F.)	68–70	68–72	70–76	73–78
Average temperature (°F.)	69	70	74	76
Range of humidity (per cent)	48–60	40–55	20–34	22–25
Average humidity (per cent)	53	49	27	23

Hospital Progress

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THE AFTER LIFE OF PUPIL NURSES

The very interesting and significant series of statistics which are published in this issue and which sum up the investigations so far made by the Committee on the Grading of Schools of Nursing, will enable those who are responsible for our nursing schools to forecast the probable career of many of their students. According to this forecast, they will see that out of all the students who graduate from their school, the greater part will go into private-duty nursing. Among these private-duty nurses, the ones who have the least previous education before entering the school of nursing will tend to stay longer at the work. Those who have better education will gravitate toward institutions or will take up public-health or school nursing.

The graduates who remain private-duty nurses will suffer a good deal more from sickness and unemployment, will save much less money than institutional and public-health nurses and will not fare so well in comparison with the practical nurse as one would naturally expect from their additional discipline and training. They will average from $1,100 to $1,300 a year of actual salary, providing they can work with average continuity. They will find themselves much more appreciated if they possess some special qualifications, and not only their professional skill, but especially their personality and their capacity to handle their patients will be taken into account by the physicians.

As to their employment, it will come much oftener from hospitals than from central registries and only a comparatively small proportion of their work will be given to them directly by the doctors themselves. All these things are to be read from the statistics so far gathered. Further studies may modify or change what is here set down, but our experienced superintendents of nurses knew a good many of these things already. These remarks will help them, perhaps, to visualize still more vividly the conditions under which nurses have to work. Her devotion and skill in preparing them to meet these conditions will be a test to a large degree of the superintendent herself.—*E. F. G.*

MEDICAL MISSIONS AND CHRISTMAS

Generosity is a part of the very soul of Christmas. Our Christmas gifts are only one expression of the spirit which ought to permeate and inspire every hospital at Christmas time. To give to our friends is good, but to give to Christ's poor is better, and surely it is specially blessed to give to those who have left home and country for His sake, and are working to spread His kingdom in far-off mission lands. All our hospitals, therefore, will wish to be specially generous to the missions. Since it is their particular vocation to heal the sick in imitation of the charity of Christ, they will wish particularly to help the Catholic medical missions. The purpose of the medical missions is to protect the health of the missionaries, of which they themselves are often forgetful in the midst of their labors for souls, and to assist them to help and heal the sick in mission fields, thereby paving the way for the conversion of many.

There are so many ways by which our hospitals can help the medical missions: by prayer, by friendly interest, by contributions of supplies and equipment, by securing donations from others, by sending books, material, in a word by all the means which charity and interest will suggest. Every hospital should adopt a dispensary or hospital in the mission field, should correspond with the missionaries, send them supplies and equipment, and make them feel that they have a friend at home, a great thriving Catholic hospital which is interested in their work and willing to help it. The Catholic Medical Mission Board will willingly cooperate, by suggesting the dispensaries, hospitals, and missionaries which will welcome such cooperation, and by sending their addresses. Take occasion of the approach of Christmas time to open your heart to the medical missions, and make the first move toward adopting some medical-mission work in the foreign field.—*E. F. G.*

RETREATS FOR THE NURSES

There are very few Catholic schools of nursing in which the annual retreat has not become an accepted part of the year's exercises. This is as it should be, for surely no one detail of the work of the school of nursing is so important as the giving of the spiritual exercises which strengthen the character, purify the heart, and help to give that solid foundation of piety and religion which is more and more evidently the soul of the nursing profession. But when we come to inquire about the method of conducting these spiritual exercises, we find that this varies extremely. Some hospitals are satisfied with securing the services of a retreatmaster who gives instructions for two or three days, to which the nurses come when they can, and in the meantime they have to carry on all the usual work in the hospital.

This method of holding a retreat is a very imperfect one. The word "retreat" means to go apart, to seek seclusion and solitude, to withdraw one's self from usual surroundings and active work so as to be alone with God and so as to be able to reflect seriously on the great business of salvation. Any one who remembers the necessary distractions and stringent demands of hospital work can readily see how impossible it is to be able to make a really good retreat, in this sense of the word, in the midst of such distractions. True, such a retreat is better than none, and the earnestness of the retreatmaster and the good will of the retreatant, helped by the encouragement of hospital Sisters, does undoubtedly secure precious spiritual fruit. But it would be

much better to have the nurses go, group by group, to some house of retreats where they could be secluded and tranquil and could make a real retreat.

This is actually being done in some schools of nursing. There the students are divided into bands and each band, at the most convenient time of the year, is sent off separately for three whole days of a true retreat. We fully appreciate the difficulties which such a procedure involves, but our directresses of schools of nursing have solved greater problems than this, and the fruits are precious enough to deserve their utmost effort.—*E. F. G.*

AS A WORK OF MERCY

The good Samaritan knew nothing of antiseptics or gauze. He had never had instruction in the folding of dressings. He merely found a man lying wounded by the wayside, where many had passed him heartlessly by, and, moved by pity, he poured wine and oil upon his wounds in the simple fashion of the times, placed him upon his own beast and took him to the inn, paying for him until he should have time to get well again. All through the ages this work of mercy has shone out as an example, and we may readily see how noble it was and how deserving of imitation.

When a man falls among thieves nowadays, and is pounded with a "billy" or shot with an automatic, he straightway is whisked to the hospital in an ambulance, and rushed to the emergency ward for attention. The whole procedure is terribly commonplace, beside the noble deed of the good Samaritan. And if, instead of the onslaught of a robber, it is the insidious poison of hosts of tiny beings called microbes which have laid the patient low—the procedure is still more prosaic. He is examined, classified, recorded, the treatment is indicated, and he becomes a "case" to be dealt with according to definite routine, scientifically determined.

What we have continually to remind ourselves and others of, in season and out of season, is this: that the one case is as glorious and as sublime an opportunity as the other; that the ministrations of the modern hospital, with all its methods and machinery, are motived, or should be motived, by the same blessed spirit of charity and pity, as that which prompted the kind deed of the good Samaritan; that caring for the sick under scientific conditions, with the latest appliances and the most effective modern routine, is as much a work of mercy as if we relieved some one out in the wilderness, where we had nothing but oil and wine to pour into his wounds and no shelter but an inn in which to nurse him to health again.

The science, the method, the efficiency of a modern hospital, must never obscure the sublime truth that every work done therein is a work of mercy and should be raised, by the intention which inspires it, to the splendid dignity of an act of Christian charity. The nurse, the doctor, the Sister who go about the humblest part of their service in the hospital for the love of Christ, are performing deeds as essentially noble and meritorious as did he of old whose act of pity, "on the stretched forefinger of all time shineth forever."—*E. F. G.*

WHEN THE PATIENT LEAVES

Time was, when hospitals were merely, "hotels for the sick" and the hospital workers took no more interest in and paid no more attention to the departing patient than the hotel keeper gives to the departing guest. But that era of hospital administration is happily past. Nowadays, the patient who has left the hospital is still an object of real interest and concern to the well-trained hospital executive. Indeed the securing of end results in hospital treatment is of very acute importance. And to keep the patient well is a matter of almost as much concern as getting him well. Yet, a word of suggestion from time to time concerning the interests of the hospital in the former patient may serve as a useful stimulus. Besides, it is hardly enough to be satisfied with getting the end results, with chronicling the outcome of the treatment. Just as a school retains an interest in its pupils when they have graduated and gone out into the world, so the hospital ought to keep up its interest in its patients, for each patient bears with him or her from the hospital so much investment of time, effort, and activity.

It is sometimes said, and it is to the credit of human nature, that when we confer a benefit on somebody, we have a more lively interest thereafter in his welfare. This ought to be true of hospitals as well as individuals. If the hospital has done its duty toward the patient, the patient is well disposed toward the hospital and will be glad to be kept in touch with it and further aided by it. If something has gone wrong and the patient was displeased, the bad impression may be eliminated by further kindly contact. By means of letters, notices, and bulletins the patient and the hospital may keep in contact. Lectures, conferences, given in the hospital auditorium are another means of helping former patients. The social-service department, also, might well be developed in this direction. It is, after all, not the poor patients only who need help. People may be poor in mind and soul though they are very well-to-do in material things. They may need help and inspiration along other lines than merely physical ones. The hospital is destined to widen its influence more and more and to do more and more for its patients, past and present, and even future. The wise hospital executive will take heed of and prepare for such service.—*E. F. G.*

AMBITION

If any little love of mine
  May make a life the sweeter,
If any little care of mine
  May make friends the fleeter,
If any lift of mine may ease
  The burden of another,
God give me love and care and strength
  To help my toiling brother.

—*Catholic Northwest Progress.*

Some Interesting Nursing Statistics

By the Editor

AT the meeting of the American Hospital Association the committee on the Grading of Schools of Nursing exhibited in its booth some very interesting statistics, the result of the questionary which has been sent out to doctors and superintendents of nurses in selected areas throughout the country. We shall publish an abstract of these statistics for the benefit of the readers of HOSPITAL PROGRESS and shall make a few comments on their significance. The statistics are as follows:

Support Someone Else? (Private Duty Nurse)

	%
Complete	12
Partial	41
None	47

Help Support How Many?

	%
1	27
2	16
3	6
4	2
5	1
6	1
7, 8	Less than 1

Keep On.

	P.D. %	P.H. %	Inst. %
Yes	55	86	82
No	36	8	11
?	9	6	7

Private Duty—Keep On?

	%
8th Grade or less	67
1 Year High School	58
4 Years High School	52
College, 4 Years	8

Where Do Graduates Go?

	%
P. D.	54
Inst.	23
P. H.	19
Other	4

Hospitals With Schools?

Of the 7,103 hospitals in the U. S. only 2,096 (30%) have nursing schools. The other 5,007 are dependent for their supply of trained nurses upon the product of the 2,096.

Days too Sick to Work?

During the last week of March the typical private-duty nurse lost .36 of a day because of sickness; public-health nurse lost .13 of a day; institutional, .09.

Preliminary Schooling

	P.D. %	P.H. %	Inst. %	All %
8th Grade or less	14	9	9	11
1 Year High School	14	10	12	13
2 Years High School	17	16	12	15
3 Years High School	13	11	12	12
4 Years High School	33	34	33	34
1 or more Years of College	9	20	22	15

Mrs. or Miss

Of 20,000 nurses actively engaged in P.D., P.H., Inst. nursing, 20% with Mrs. in front of their names.

Geographical	Mrs. %	Miss %
Northeast	18	82
South	31	69
Central	15	85
West	25	75

The Typical Week

	P.D. %	P.H. %	Inst. %
Rest	.5	1.2	.8
Sick	.4	.1+	.1—
Wait	1.0	...	...
Work	5.1	5.7	6.1

Years Out and Year's Pay

Institutional salaries include flat allowance of $500 a year for maintenance. Averages:

P. D.	$1,311
P. H.	1,720
Inst.	2,079

Borrow Last Year

"Did you have to borrow any money last year to live on?"

Yes—	%
P. D.	14
P. H.	8
Inst.	3

Money Saved

"Have you as much as $200 set aside which you could use in case you became ill? $1,000?

	Under $200 %	$1,000 %
P. D.	27	29
P. H.	24	32
Inst.	18	42

Nurse M.D. Employed

	%
Practical	9
Don't Know	2
R. N.	89

R.N.	%	Practical	%
Poor	2	Very Poor	2
Fair	10	Poor	3
Good	28	Fair	22
Very Good	60	Good	33
		Very Good	40

	%
Surgical	45
Medical	34
Obstetrics	12
Pediatric	3
Contagious	3
Mental	3

Each M.D. asked to report on one case needing service that week. One half who answered were general practitioners. Yet one half of cases were surgical.

M.D. Same Nurse Again

	%
Yes	87
Don't Know	2
No	11

What M.D.'s Wanted

	%
General Care	63
Observe Symptoms	44
Follow Orders	40
Handle People	30
Hospital Routine	28
Asepsis	26
Experienced	24
Special Treatment	21
Drs. Methods	20
Particular Disease	16
Heavy Strain	13
Resp. Adult	3
Mother's Helper	2

Source of Nurses

	%
Hospital	55
M.D.	18
Central	16
Com	7
Other	4

Register Against

	%
Nothing	39
Contagion	29
Obstetrics	18
Mental	13
Night	8
24 Hour	6
Men	2
Home	2
All but 1	2

Many have had little or no training in these lines.

Length of Day

	Hospital %	Home %
Day	52	3
Night	36	14
24-Hour	12	56

Which?

	%
Graduates	24
Students	76

Six hundred Supts. of Nurses answered this question: "If you had your choice which would you rather have to take care of your patients, student nurses or graduate nurses?"

Separate Dining Room—600 Supts. Answered

	No %	Yes %
0 Students	78	22
1-19	68	32
20-39	50	50
40-59	31	69
60-79	47	53
80-99	36	64
100-	36	64

24-Hour Hospital Duty

	%
Massachusetts	15
New York	3
Pennsylvania	18
Illinois	23
California	5
Washington	14

Other states surveyed are Georgia, Kansas, Louisiana, and Wyoming.

Patients in Separate Room

	%
None	5
One	3
Two	39
Three	180
Four	137
Five	35
Six	17
Seven	1
Eight	5

Question: "How many patients in separate rooms can a student nurse take care of?", answered by 417 superintendents.

The first group of answers, which gives the proportion of nurses who have some one else to support and how many they support, is quite significant as it shows

that 53 per cent of all private-duty nurses are helping to support someone else and that of these, more than 26 per cent are helping support two or more persons. This throws a new light on the devotedness of private-duty nurses, on the service they are rendering to society, by helping support others.

The next group of statistics is a response to the question: "Do you intend to keep on nursing?" The public-health nurses show most the spirit of perseverance as 86 per cent intend to persevere, while only 55 per cent of the private-duty nurses are resolved to continue. Of these private-duty nurses, the ones who have the least education are those who are most satisfied with their present work, as 67 per cent of those who wish to continue nursing have eighth grade or less and eight per cent have four years of college.

The next question asked of the superintendents of nurses was: "Where do your graduates go?" As will be seen from the replies, more than half of the graduates go into private-duty nursing, while only 23 per cent go into institutional work. From the inquiry as to how many of the hospitals have schools, we find that there are only a little more than 2,000 hospitals out of the 7,000 hospitals in the United States which have schools of nursing.

The survey of the time during which the nurses are too sick to work shows that the private-duty nurse has much more sickness to contend with than the public-health nurse, while she again is sick far oftener than the institutional nurse. In preliminary schooling the private-duty nurse is also at a considerable disadvantage as compared with the other groups. Fourteen per cent of all private-duty nurses who reported have less than an eighth-grade training, and only 9 per cent have had one or more years of college, while both the public-health and institutional nurse have only 9 per cent with eighth-grade or less and about one fifth have had one or more years of college. These figures show the gravitation of the better-educated nurses out of private duty and into institutional and public-health nursing.

The married or single status of the nurse is the subject of the next inquiry. Only about one fifth of the nurses in active practice are married, but down south there are proportionately a good many more married women nursing than in any other section of the country.

The typical week of the nurse and the average year's pay reveal also the relative disadvantage of the private-duty nurses. She has only about .5 per cent day of rest every week as compared to the 1.2 per cent of the public-health nurse. She is sick four times as much as the other workers, she is waiting for work 1.0 per cent of the week while they are actively engaged all the time, and her average salary during 30 years of nursing life is about $1,300 a year, while a public-health and the institutional nurse average about $1,700 and $2,000, respectively. Private-duty nurses have to borrow money much oftener than the others, and they save much less, according to the statistics.

Next come some interesting reports of physicians which show that out of those who answered the questionaries only 89 per cent knowingly employed registered nurses, while 9 per cent chose practical nurses and 2 per cent did not know whether they had practical or registered nurses.

We have grouped with these statistics another set in which the doctors were asked to report on one case needing service that week and to state how they would grade the service rendered. Even keeping in mind the far larger number of registered nurses employed, the relative approval given to the registered nurse and the practical nurse does not seem to be sufficiently in favor of the registered nurse. Only 60 per cent of the registered nurses were qualified as very good, while 40 per cent of the practical nurses were described as very good. On the other hand, 33 per cent of the practical nurses were described as good while only 28 per cent of the registered nurses were described as good. Perhaps this may be explained in part by the fact that the practical nurses who do succeed have enough personal talent and practical experience to offset in some degree their deficiency in early training. The more careful discussion of these figures will have to be postponed until more statistics are gathered.

It is creditable to the nurses that 87 per cent of the doctors want the same nurse again and only 11 per cent distinctly objected to having the same one take care of their future patients.

The next series of answers throws an interesting light on what service doctors want from nurses. It will be observed that those qualifications which are grouped under personality play a not unimportant part in the requirements of physicians, as 30 per cent of the doctors wanted nurses that could handle people. The statistics indicating the source of nurses and the cases which they prefer, again speak for themselves, but it is quite significant that so few comparatively of the nurses come from the central registry while a predominating proportion are secured from the hospital. It is significant, too, that quite a large proportion of nurses object to obstetrical cases, which may come from the fact that they feel their training is inadequate to take care of these cases.

Another very significant series of replies is that in which the 600 superintendents of nurses indicated a strong preference for student nurses to take care of their patients as only 24 per cent prefer the graduates, while 76 per cent prefer the students. The same superintendents showed a great increase in their desire for a separate dining room in proportion to student nurses they had in charge. In regard to 24-hour hospital duty, the state which has most of it among those surveyed is Illinois, while New York has least.

Finally, in answer to the question: "How many patients in separate rooms can a student nurse take care of?", the majority opinion was in favor of the ability of each student nurse to take care of three patients in a room. A large number said four and about equal numbers said two or five. Hence it would seem that the weight of opinion among superintendents is that each student nurse can conveniently take care of three or four patients in separate rooms.

All in all, these statistics deserve careful study by those who are interested in nursing and nursing education. We may say in general that they bring out the disadvantages under which a private-duty nurse works and help explain the shortage of private-duty nurses and the tendency of better-educated nurses to gravitate into public-health work and institutional work. They are more favorable to practical nurses than one might expect and they contain an element of strong approval of the capacity and effectiveness of student nurses as compared with graduate nurses, at least in the judgment of superintendents of nurses, who strongly prefer student nurses to take care of the patients and who, in large numbers, assert the ability of one student nurse to take care of three or four patients in separate rooms, thus vindicating the principle of group nursing when student nurses do the work.

All in all, this is a very interesting exhibit and as the hospitals and the public in general have such a keen and vital interest in the advance of the nursing profession, these statistics deserve careful study and thought, especially by those who are responsible for the training of nurses and for the advancement of nursing education.

Successful Convention of A. H. A. at Minneapolis

THE 29th meeting of the American Hospital Association was held at the Municipal Auditorium in Minneapolis, Oct. 10-14, 1927. Dr. Broderick presided at the meeting. At the final business session on Oct. 14, Dr. Joseph C. Doane, superintendent of Philadelphia General Hospital, who has been president-elect became president for the coming year. He will have general charge of preparations for next year's meeting to be held at San Francisco. Dr. Louis H. Burlingham, superintendent of Barnes Hospital, St. Louis, Mo., is the new president-elect.

Other organizations meeting with the A. H. A. were: The American Association of Hospital Social Workers; the American Occupational Therapy Association; the Children's Hospital Association of America; and the Hospital Dietetic Council. The American Protestant Hospital Association met at Minneapolis, Oct. 8-10. Mr. Robert Jolly, superintendent of Baptist Hospital, Houston, Texas, president of the Protestant Association, presided at the meetings of the latter group. The new president is Rev. Herman Fritschel, superintendent of the Milwaukee Hospital, Milwaukee, Wis., and the president-elect, Rev. J. H. Bauerfeind, superintendent of the Evangelical Deaconess Hospital, Chicago, Ill.

COMMUNITY HOSPITALS PREFERABLE

Dr. R. G. Broderick, director of Stanford University Hospital, San Francisco, Calif., who during the past year has been president of the American Hospital Association, voiced his approval at the opening of the Minneapolis convention, October 10, of the principle of "the voluntary hospital system," Dr. Broderick said:

"One of the big concerns of the people of this country today is, I believe, the maintenance or the continuation of the voluntary hospital system which stimulates philanthropy and the discouragement of the increase in hospitals for charitable purposes maintained by taxation and therefore subject to partisan political manipulation. Partisan politics in hospital administration or partisan political control of hospitals decreases or rather suppresses the incentive for philanthropy, increases the possibility for inefficiency by reason of ill-advised political appointments to positions of responsibility, regardless of qualifications, thus jeopardizing the highest standards for the care of the sick. Where hospitals are under direct political control, there should be a method devised whereby a board of trustees of distinguished citizens in the locality should have some voice in the control of these institutions. This seems to be one of the pressing problems of the day because of the tendency of some communities to place the responsibility for hospitalization upon the shoulders of the state, county, or municipality, rather than continue their support and maintenance as community projects."

International Hospital Convention

A report was given at the Minneapolis convention of the progress of the international-convention plans. Delegates from eleven countries met, Sept. 19 at Red Cross headquarters in Paris to discuss organization. An executive committee of five was appointed consisting of the Delegates from England, France, Sweden, Italy, and Holland. The idea of an international conference originated with the American Hospital Association.

Promoting Simplification

Miss Margaret Rogers, R. N., superintendent of St. Luke's Hospital, St. Paul, Minn., a trustee of the A. H. A., is chairman of the association's committee on simplification and standardization of furnishings, supplies, and equipment. The U. S. Department of Commerce Division of Simplified Practice in cooperation with manufacturers, hospitals, and associations is saving thousands of dollars for hospitals through its program of standardization.

Curing the "Incurable"

One of the notable addresses of the A. H. A. convention was that of Dr. Ernest R. Boas, medical director of Montefiore Hospital for Chronic Diseases located at New York City. Dr. Boas is opposed to pronouncing the verdict "incurable." He says, such a verdict "places a serious responsibility upon the physician, and implies, at times, a greater knowledge than he possesses." Again, he charges that often chronic diseases are being looked upon as the natural effects of age. "Persons between their fiftieth and seventieth years," said Dr. Boas, "who are disabled or infirm, should be regarded as sick, not as suffering the natural decrepitude of old age." Dr. Boas stressed the need for more adequate facilities for the housing and care of the chronically ill.

Measuring Hospital Efficiency

Dr. W. P. Morrill of Columbia Hospital, Washington, D. C., speaking at a luncheon club during the convention, stated that hospital efficiency can be measured as accurately as the production of any factory. "Under present medical conditions, human life is quite purchasable and the hospital may well be considered as a mill which receives the sick as its raw material and turns out the well as its finished product. Those who are not cured or die may be considered as spoiled in the process of manufacture."

Nearly Eight Thousand Hospitals

Dr. Louis H. Burlingham, superintendent of Barnes Hospital, St. Louis, Mo., and the new president-elect of the A. H. A., in a luncheon address during the convention called attention to some outstanding hospital statistics. There are today, he said, in the U. S. and Canada nearly 8,000 hospitals compared with 149 in 1873. The hospitals have a combined wealth of over $4,000,000,000 and spend more than $1,000,000 a day for new buildings and equipment over and above expenditure for care of patients in excess of $3,000,000 daily. Dr. Burlingham gave examples of the social-service work of Barnes Hospital to illustrate what modern hospitals are doing for the needy in removing the social and economic causes of diseases.

Hospitality of Minneapolis

The sessions of the convention, as well as the exhibits, were housed in the splendid new municipal auditorium of Minneapolis. The exhibits formed a very interesting feature of the convention and were tastefully displayed in 345 booths, which were on the two levels of the exhibition floor of the auditorium. Of special interest were the booths of the American College of Surgeons, where some of the publications of the College were distributed, that of the American Nurses' Association, of *The Trained Nurse and Hospital Worker*, and of the Committee for the Grading of Nursing Education, where interesting statistics were on exhibition which we are giving our readers on another page.

The various hospitals of the city extended their hospitality to the delegates in various ways. Lectures were given in the University of Minnesota hospitals on topics interesting to the members and guests of the association. The Minneapolis General Hospital held an open house from noon till three o'clock on Wednesday afternoon, there were excursions to Grand Lake Sanatorium on Thursday, and to the United States Veterans' Hospital on Friday, and the exhibitors held their banquet on Wednesday evening at the Curtis hotel, when an announcement was made of the next convention of the Catholic Hospital Association, which will be held in Cin-

cinnati, at the Music Hall there, from June 18 to 22 of next year. This address was given by Mr. M. A. Higgins, Director of Exhibits, for the coming convention, and aroused great interest among the exhibitors.

Hospital-Day Award

Presentation of the Certificate of Award for the best account of the observance of National Hospital Day in 1927, was made on the afternoon of Tuesday, October 11, to the John D. Archbold Memorial Hospital, Thomasville, Georgia. First honorable mention was given to Lake View Hospital, Danville, Illinois. Second honorable mention was earned by the United States Veterans' Hospital, Jefferson Barracks, Missouri. Third honorable mention will be presented to the United States Veterans' Hospital, Waukesha, Wisconsin. The sixteen hospitals which received honorable mention were as follows: Blodgett Memorial Hospital, Grand Rapids, Michigan, The Bushwick Hospital, Brooklyn, N. Y., Christ Hospital, Cincinnati, Ohio, Cincinnati General Hospital, Cincinnati, Ohio, Hackensack Hospital, Hackensack, N. J., Johnson Memorial Hospital, Stafford, Springs, Conn., The King's Daughters' Hospital, Staunton, Va., Mercy Hospital, Devils Lake, N. Dak., Moncton Hospital, Moncton, N. B., Canada, North Adams Hospital, North Adams, Mass., Ohio Valley General Hospital, Wheeling, W. Va., Oklahoma Hospital, Tulsa, Okla., Philipsburg State Hospital, Philipsburg, Pa., Roper Hospital, Charleston, S. C., St. Joseph's Mercy Hospital, Fort Dodge, Iowa, Vancouver General Hospital, Vancouver, B. C., Canada.

Visit to Rochester

As a number of the delegates wished to visit the Mayo Clinic at Rochester, special arrangements were made to welcome them. Members of the Rochester local committee boarded the Rochester special in Chicago and asked each delegate what feature of the Clinic interested him. Each was given a mark of identification and on arriving at Rochester, they were taken to the various institutions accordingly. At luncheon St. Mary's Hospital entertained two hundred guests; Kahler Corporation, two hundred; Rochester State Hospital, two hundred; and Rochester Diet Kitchen, fifty delegates. After luncheon all groups assembled in the amphitheater of the nurses' home at St. Mary's Hospital at 2:30 P.M., where the following thirty-minute program was given: "Address of Welcome," by Charles H. Mayo, M.D., "The Mayo Clinic," by William J. Mayo, M.D., and "The Mayo Foundation," by L. B. Wilson, M.D.

Dr. Walsh Resigns as Secretary

The announcement has been made by Dr. William H. Walsh, Executive Secretary of the American Hospital Association, of his resignation as executive secretary, to take effect January 1, 1928. He has been executive secretary since February, 1925, succeeding Dr. A. R. Warner who died in 1924. Dr. Walsh is returning to his private practice of hospital consultation, with offices in New York and Chicago.

At the time of the appointment of Dr. Walsh as executive secretary in 1925, the American Hospital Association was conducting its business in two rooms in rented quarters, with a staff of six people. At the present time, the association owns its own building, has a staff of fifteen assistants, has created a reserve fund and has just completed the most successful convention in its history.

"Before leaving the active service of the association as its chief executive officer, I desire to make the following comment to the membership," states Dr. Walsh. "The successful progress of the American Hospital Association depends upon its ability to render good service—that is its business and the reason for its existence. To the degree that we meet our obligations within the limitations arbitrarily set by the size of our income, do we deserve the support of the hospital field.

"Summing up the accomplishments of the past three years which may be looked upon as indications of the healthful growth of any organization, we find the American Hospital Association today in a position of which it may well be proud. We are permanently located in our own home whose value is rapidly increasing. The institutional membership has about doubled in the past three years. The general income has increased one third during the same period. In spite of the extraordinary expenditures incident to the acquisition of the new building, the state of our treasury is today more favorable than when we were conducting our work in rented quarters. During the past year more money was appropriated for actual service to the field than during any other year in the history of the association. The personnel bureau has been established and is rendering a real service to hospitals and hospital workers. A quarterly *Bulletin*, the official publication of the association, with legitimate advertising in all issues, has been successfully launched and the association has expressed its desire to extend this to a monthly hospital journal at an early date—and—finally, the association enjoys the confidence and cooperation of the other two great national organizations engaged in work somewhat similar to our own, namely, the American Medical Association and the American College of Surgeons."

THEY HAVE JUST FINISHED A CLOSED RETREAT. STUDENT NURSES OF ST. JOHN'S HOSPITAL, ST. LOUIS, MO.
The retreat was given at the motherhouse of the Sisters of Mercy at Webster Groves, Mo., August 25-31, 1927.
The Retreat Master is Rev. Vincent L. Jenneman, S.J., of St. Ignatius College, Chicago, Ill.

Organization and Management of a Hydrotherapy Clinic[1]

Rebekah B. Wright, M.D.

THE skilled physiotherapist understands and utilizes many combinations of water and electricity. Among the most popular is the hydroelectric bath. In this treatment an electric current is passed to the patient in a porcelain tub filled with water. One of the electrodes is stationary, the other movable. The tub must be properly insulated and the current perfectly controlled through a correctly installed wall plate.

For tonic effects a mild faradic current is used in water at a neutral temperature. The good effect may be intensified by the careful reduction of the temperature and the simultaneous employment of friction. Either the galvanic current or the sinusoidal current passed through a neutral bath from head to foot produces a sedative effect and has often proved a powerful hypnotic.

The Nauheim Bath

The value of the mineral baths of Nauheim, Germany, in the treatment of cardiac weakness with dilatation and chronic nephritis has long been established. The water contains calcium chloride and sodium chloride in solution and is heavily charged with carbonic acid gas. The temperature and duration of the baths are carefully prescribed. They are followed by systematic resistance exercises originated by Dr. Schott. A number of physicians, pupils of Dr. Schott, have followed the same system of treatment in America, preparing artificial Nauheim baths with water in which sodium chloride and calcium chloride have been dissolved and carbonic acid gas evolved by the addition of other chemicals. Some have impregnated the bath water with the correct amount of carbon dioxide discharged from a cylinder of the gas through bamboo rods.

Effects. The calcium chloride and carbon dioxide in water at a neutral temperature stimulate the skin, dilating its vast capillary network. A marked hyperemia ensues. The relaxing effect of heat and the vigorous circulatory reaction to cold are both avoided yet an improved distribution of the blood of the entire body follows. The work of the heart and kidneys is lessened and other viscera are relieved of congestion.

The Whirlpool Bath

Arm and leg baths equipped to obtain the effects of continuous localized douches and designated "whirlpool baths" came into general use during the late war. Their popularity in reconstruction hospitals continues and they are now frequently installed in general hospitals. Your speaker has had no experience in prescribing this treatment but understands that the bath is of great value in preparing stiffened ligaments and contracted muscles, especially those so affected after fractures, for massage.

Hydrotherapy in Hospitals for Mental Diseases

Thus far, hydrotherapy, when intelligently prescribed and administered, has proved the most practicable and effectual form of therapy in use in hospitals for mental diseases. Throughout the past 24 years your speaker has endeavored to forward this work by cooperating with architects and hospital superintendents in planning tonic-bath and sedation suites, assisting physicians in prescribing treatments and training nurses and attendants in hospitals in the theory and technic of hydrotherapy for mental diseases.

While sometimes using water treatments for their anodyne, hemostatic, antiphlogistic, antispasmodic, and antipyretic effects, physicians who treat patients in hospitals for mental diseases are particularly interested in sedative, hypnotic, eliminative, and general tonic treatments. Where hydrotherapy is highly valued and correctly used, it so permeates the whole hospital that it cannot be confined to any one particular place. It may be administered in the rooms of patients, in ward bathrooms, in the tonic-bath suite and in pack and continuous bathrooms of receiving wards and wards for disturbed patients.

The tonic-bath suite is usually equipped for the administration of the following preparatory treatments: Fomentations, hot and cold to spine, liver, and abdomen, vapor, electric-light, and saline baths, salt glows, shampoos, and wet-sheet packs. The following douches are available in the same suite: Needle spray (circular douche), rain douche, fan douche, jet douche, Scotch douche, and perineal douche.

Local conditions may be treated in the tonic-bath suite with foot baths, fomentations, hot, warm, and neutral sitz baths, ice poultices, and cold compresses but these treatments, like wet-mitten friction and hot-blanket packs, are usually more effectual if they are administered in the patient's room.

Friction

Friction and percussion are two forms of manipulation that are in constant, systematic use with hydriatric procedures. In private sanitariums nearly all baths are followed by centripetal rubs. A centripetal rub is a systematic application of friction, a light massage movement, all rubbing being done toward the heart. On account of the small number of nurses usually assigned to this work in hospitals for mental diseases, it seems best to limit the use of friction to that used in drying the patients after tonic baths, to shampoos and salt glows as preparatory treatments, to wet-mitten friction for frail bed patients and drip-sheet rubs for robust, cooperative, ambulatory patients. On account of the possibility of irritating the skin by too much friction, the shampoo, salt glow, and drip sheet are not given on successive days.

Drying the Patient

This last step of every treatment is probably its most important feature. As the patient steps from the cold fan or jet douche which concludes the tonic bath, a warm sheet is laid across the back and shoulders, and wrapped around the patient who stands upon a small, clean, washable rug. Two nurses, rubbing the patient through, not with, the sheet, absorb into the sheet all of the moisture upon the skin. It is then quickly replaced by another warm, dry sheet. The patient is then seated and special attention given to drying the hair, hands, feet, and opposing surfaces. This drying is often supplemented by brisk towel friction and percussion to assist reaction. The hands, feet, and forehead should be comfortable. There should be no excessive redness of neck and face and no throbbing of facial or temporal arteries. When returned to the ward, the patient should be guarded from drafts and have some additional clothing if not able to walk about briskly.

[1]Conclusion of the paper. The first part appeared in the November issue of "Hospital Progress." The paper was read at the Hospital Clinical Congress, Milwaukee, Wis., June 21, 1927. Dr. Wright is hydrotherapeutist to the Massachusetts Department of Mental Diseases.

Sedative Treatments

The wet-sheet pack and the neutral continuous bath are the two major sedative treatments in general use in hospitals for mental diseases. They can be given most conveniently and with the best results if the equipment for their administration is concentrated in a *sedation suite* as shown on Plan 3.

The Wet-Sheet Pack (W. Sh. Pk.)

The wet-sheet pack is the envelopment of a person in one, two, or three linen or soft cotton sheets that have been wrung out of water at a prescribed temperature. The cold moist fabric is held snugly against the body by two or more methodically adjusted woolen blankets. In hot weather one blanket is often sufficient.

While a correctly applied pack does limit the movements of the patient, *it should never, under any circumstances, be prescribed as a restraint, punishment, or substitute for seclusion.* It should be given for its therapeutic effects only.

The best way for nurses to master the details of the pack is to practice the envelopment, using dry sheets, from six to ten times upon a willing model under the direction of a competent instructor.

Temperature. The sheets of the pack are immersed in and wrung out of water between 48° and 70° F. For timid persons who are delicate, neutral packs, water between 92° and 97° F. are sometimes used. Occasionally the sheets are wrung out of water between 106° and 110° F. and applied very warm. Some frail, poorly nourished, very active young patients are given hot baths, 102° to 106° F., for five minutes preceding the envelopment. The exact temperature of the water used for the pack sheets is determined from the patient's general physical condition and reactive capacity, and the temperature and humidity of the air of the room. In cold and damp weather every precaution must be taken to guard against the patient's "taking cold."

When the foot bath and hot-water bottle are used the temperature of the water for the former should be between 104° and 110° F. and for the latter 116° F. The towel compresses should be immersed in and wrung out of water between 42° and 50° F.

Effects. The ultimate results of the cold wet-sheet pack depend upon the extent and character of the patient's reaction to the cold of the moist sheets and the effects obtained from the application of cephalic cold.

Action. When the cold, moist sheets come in contact with the skin of the whole body the first effects are those of action which are common to all brief general applications of cold. They are disagreeable sensations of cold, actual cooling of the skin, contraction of muscles, sometimes shivering, pallor and cutis anserina, checked, then quickened and sometimes gasping respiration and checked insensible perspiration. The contraction of the skin drives the blood out of its vast capillary network into the interior of the body, dilating the large internal vessels and slightly elevating internal temperature. At the same time a contraction of involuntary muscle fibers concerned in regulating the circulation of the blood through the minute vessels of the spleen, kidneys, and other viscera takes place because of the application of cold to the skin areas that are in reflex relation with them. The pulse is quickened and arterial tension is increased.

Reaction. Circulatory reaction begins instantly and thermic reaction is usually established in from 5 to 30 minutes after the cold moist sheets are applied. The chilly sensation ceases. The skin becomes warm. The arrectores pilorum and the elastic fibers of the skin relax. The skin returns to its normal smoothness and hue and often becomes pink. Respiration becomes easier, slower, and deeper. Insensible perspiration begins. The large internal blood vessels contract. Internal temperature is slightly lowered. The cutaneous capillary network, capable of containing one third of the blood of the body, becomes distended. The pulse is slowed and blood pressure is slightly elevated. The rapidity and intensity of the reaction depend largely upon the temperature of the cold moist sheets and the method of their application. A full-blooded, excited patient will react promptly to sheets wrung out of water at a temperature of 48° to 60° F. It would save considerable labor if some of the surface heat could be withdrawn from the flaming skin of an active, excited patient by momentary envelopment in a cold dripping sheet just previous to the application of the sheets of the pack. If this is not done and much heat is abstracted from the skin by the large and cross sheets of the pack, so that they immediately become warm, it is necessary to replace them by others which are as cold or colder before proceeding with the blanket envelopment.

If there is any unusual paleness of the face, blueness of the lips or shivering, the patient is not reacting to the cold and should be removed at once and subjected to some warming procedure, as a warm bath, wrapped in hot blankets, or the application of flannel-covered hot-water bags to sides and feet under warm covering and should be given a hot, stimulating drink.

For convenient reference, we speak of the *cool, neutral,* and *superheated* stages of the pack. Action takes place and reaction begins during the cool stage and will extend into a superheated stage unless measures are taken to prolong the neutral stage and to terminate the treatment at the end of this calmative period. The neutral stage may be said to have begun when the surface of the body and the sheets and the moist air within the blankets surrounding the body have reached the normal average temperature of the skin, about 92° to 94° F. To prolong this stage, after reaction is established, remove the third or cover blanket. If the room is warm and the patient continues quiet, it is sometimes possible to remove one half of the outer enveloping blanket.

Some disturbed patients are fearful during the first few minutes after the envelopment, especially if it is the first treatment. This feeling of apprehension soon disappears and a sensation of calmness ensues. The arteries of the brain, which were dilated during the cool stage, contract during the neutral stage, decreasing the amount of blood in the brain and facilitating the accumulation of lymph in its large lymph spaces. This condition of anemia of the brain and the presence of an abundance of lymph favors sleep and the repair of nervous tissue.

Wet-sheet packs may be so managed as to secure tonic, sedative, eliminative, or antipyretic effects. While they are administered to the mentally ill for their sedative effect, at the same time the circulations of the blood and the lymph are improved, elimination is promoted, metabolism is stimulated and nutrition is heightened when they are given daily. The good secondary effects are doubtless partly due to the stimulation, through the circulatory reaction, of torpid liver, passively congested kidneys, and sluggish bowels.

Duration. The wet-sheet pack cannot be prescribed for any definite length of time. The duration should be while the patient is quiet and comfortable. It is customary to prescribe wet-sheet packs, "One hour or while sedative effect continues." It is during the neutral stage that sedation occurs. As soon as there is any indication that the neutral stage is over, the patient should be removed from the pack. *The period of sedation varies from one-half to three and one-half hours.* Occasionally, *if the patient sleeps,* it may be four or five hours. A patient is seldom comfortable in the pack for a longer period

than three and one-half hours. The patient who sleeps in the pack, should usually be removed immediately after awakening. A patient becoming restless after a short period of quiet or not becoming quiet within 50 or 60 minutes, should be removed at once. A pack of short duration may be immediately followed by another pack or by a prolonged neutral bath or by a period of rest in bed, or the patient may, occasionally, be permitted to sit up fully clothed.

It occasionally happens that, in spite of careful technic, the desired sedation is not obtained. Sometimes patients react too vigorously, passing directly from the cold to the superheated stage. This is shown by talking, redness of the face, quickened pulsation of facial and temporal arteries, warmth of face and head and, finally, perspiration. The skilled hydriatric nurse watches patients in packs closely and endeavors to obviate any of these phenomena of superheating by removing the patient before they can occur, renewing the pack and applying cephalic cold freely. After removal from the pack, it is sometimes possible to continue the ice cap to the back of the patient's neck for 15 or 20 minutes.

Cephalic Cold with the Pack. Continuous cold cephalic applications are used to counteract active cerebral congestion. When applying cold or neutral wet-sheet packs to restless, active, or noisy patients, it is necessary to be prepared to apply cold to the head as soon as the blanket envelopment is completed. If the patient becomes quiet while being enveloped and there is no undue warmth or flushing of the face, the cephalic cold should be omitted. Its application is often a severe tax upon the tact and ingenuity of the nurse. The icebag to the back of the neck or an ice collar around the neck and cold compresses to the cheeks and forehead are the usual forms of application.

A prolonged application of cephalic cold causes contraction of the cerebral arteries, thus lessening the amount of blood in the brain; a cold application to the head which includes the neck contracts the carotid and vertebral arteries and all of their distal branches; continued cold to the head lowers the temperature of the brain; cerebral thermic centers are depressed; heat production is diminished and vital activity is lessened.

The cold compresses are discontinued as soon as warmth and flushing of the face subside. They may be applied for 6, 10, 15, or 20 minutes. The icebag or ice collar may be discontinued early, within a few minutes or within a half hour if the patient is quiet and the face is not warm or flushed. Often a patient will sleep when the icebag has been removed and replaced by a comfortable pillow. Others require cephalic cold throughout the pack. The vascularity of the scalp is so great that the circulation continues unimpaired under the prolonged application of ice.

Management and Aftercare

For sedation. Stimulation of the activity of the kidneys is one of the frequent reflex effects of the application of the cold, moist sheets. Except in the rare cases where the physician considers gavage necessary or a frail patient needs warm nourishment, your speaker discourages giving liquids just before or during the pack. While drinks are not offered, water is never withheld if the patient is thirsty. The patient should void urine just before the sheets are applied. Peristalsis of the bowels is also stimulated by the general application of cold. It is desirable that the patient's bowels should have moved previous to the administration of the pack. Enemas are practicable for cooperative sleepless or restless patients. Even with precautions, patients sometimes have to be removed from the pack for attention to the emunctories. A case of involuntary soiling should be removed, bathed, and reenveloped.

The nurse assigned to observe the patient should try to do it without attracting the attention of the patient. She should discontinue the face and forehead compresses as soon as possible and leave the patient alone to rest and sleep. It is sometimes necessary to remove the cover blanket or the icecap, to add covering, to give a small drink of water (upon request), to observe the respiration or the color of the patient's face or even feel of the face or count the temporal pulse. Any of these attentions should be given as quietly as possible to avoid stimulating and again exciting the patient.

For elimination. When it is necessary to push elimination through the skin the pack is permitted quickly to reach a superheated stage. It is sometimes applied neutral, 92° to 97° F. or warm, 100° to 106° F. The heat is retained by surrounding the sheet and blanket envelopment by a rubber sheet. The superheated stage is maintained from 30 to 60 minutes. Profuse perspiration is induced. Liquids are given freely. There is often considerable activity of both kidneys and bowels. If there is no soiling from the emunctories the odor of the sheets, when removed, indicates that considerable waste material has been eliminated through the skin. Cephalic cold is carefully applied. The pulse is closely watched. Flushing of the face subsides. Blood pressure, judged by palpating the temporal pulse, is lowered. Sedation is obtained.

Aftercare. The prolonged warm moisture of the pack renders the skin of the whole body unusually sensitive. It is, therefore, important to dry the skin thoroughly, dust with talcum powder and shield from drafts after the treatment.

It is sometimes practicable to follow a pack administered during the day by a neutral shower of a few seconds' duration at a low pressure. If it can be given without stimulating circulatory reaction and again exciting the patient, it enhances the feeling of well-being. The patient is dried in a warm sheet without friction.

When the treatment is administered at night, the patient is removed from the pack when quiet has been induced, dried in a warm sheet without friction, dressed in a warm nightrobe, given a glass of hot milk and placed in bed.

Therapy. The wet-sheet pack is administered for its sedative, hypnotic, or eliminative effect to restless, sleepless, or excited patients at some time during almost every psychosis. Sedative packs, applied cold and kept at *the neutral stage,* are prescribed for the excitements of the manic-depressive and epileptic psychoses, dementia praecox, psychoses with mental deficiency, psychoneuroses, and the agitation of involution melancholia. Eliminative packs are given to excited patients suffering with acute nephritis, the exacerbations of chronic nephritis, beginning with arteriosclerosis, and the alcoholic psychoses (pathological intoxication, delirium tremens, Korsakow's syndrome and acute hallucinosis). In the packroom of the tonic-bath suite wet-sheet packs are the most valuable available preparatory treatments for sleepless, restless, or hypomanic patients and those recovering from manic attacks. They are followed by the usual needle sprays and douches.

Contraindications. Cold wet-sheet packs are not prescribed for very frail elderly or middle-aged patients or for those who have organic heart lesions or advanced arteriosclerosis.

The Continuous Bath (C. B.)

A continuous or prolonged bath is one that is administered for hours, days, weeks, or months. It is sometimes

called a continuous flowing bath if the prescribed temperature is maintained by keeping a stream of water flowing through the tub. It is given between the temperatures of 92° and 97° F. It is a prolonged neutral bath, as it neither adds heat to nor abstracts heat from the skin.

Duration. Some patients are soothed and kept comfortable by baths of short duration (2 or 3 hours), given two or three times during each 24 hours. Daily baths of 6- or 8-hours' duration are frequently administered to excited patients. In some hospitals daily continuous baths of 18-hours' duration are given. Some very disturbed patients are kept in the baths without removal for periods of two or three weeks. Persons suffering from extensive burns are kept in the baths all of the time. Paralyzed persons with decubitus are frequently kept in the baths for days.

Instruction. Every nurse assigned to duty in the continuous bathroom should receive from 4- to 8-hours' instruction from the hydrotherapist.

Rules. A list of rules should be conspicuously displayed in every continuous-bath room. They should cover briefly the subjects of responsibility, prescriptions, care of tubs and mixers, position of patient, support and covers, temperature of bath water, pulse, cephalic cold, drinking water, nourishment, toileting patients, care of the room, fabrics, utensils and ice, records, accidents, method of removal, and aftercare.

Dangers

Hydrotherapy is a two-edged sword. The dangers of the continuous bath—fainting, chilling, scalding, drowning, and convulsions cannot be too strongly emphasized. Three serious accidents may result from variations in the temperature of the bath water:

First, *fainting.* This occurs if the temperature of the bath water remains at or above 98° F. for any length of time, especially in hot summer weather. It must be avoided. In hospitals where the principles of hydrotherapy were not well understood, this unfortunate accident has occurred. Death followed. When the collapse of the patient in the continuous bath was investigated, it was usually found that the temperature of the bath water had remained above the temperature of the skin for an hour or longer, preventing the elimination of body heat.

The nurse is instructed that if this unfortunate accident occurs she should summon assistance, remove the tub cover, drain the tub, lift the patient out into warm blankets spread upon a couch or upon the floor and give the first aid usually rendered to fainting persons. The patient's skin may be warm from the too warm water of the bath, but chilling must be prevented. Stimulants are given by mouth or hypodermatically, as ordered by the physician, who should be called at once.

Second, *chilling.* Many patients have been eating poorly. Their vitality is low. The quality of their blood is poor. All of their tissues lack tone. The heart and arteries are not equal to any unusual demands. A bath at 96° F. may abstract from the skin of such a person more heat than is supplied to it by the poorly circulating, impoverished blood and chilling is inevitable. Chilling will almost surely occur if the temperature of the bath water is below 92° F. in summer or 96° F. in winter.

A patient complaining of being cold, and showing signs of chilling (blueness of the lips, undue pallor, cutis anserina or shivering), should be removed immediately, placed between warm blankets, surrounded by moderate heat and given a stimulant if ordered by the physician.

Third, *scalding.* In this connection permit me to repeat that "No mechanical contrivance for controlling the temperature of the water is so perfect that it may not wear out and break down sometime." The only absolute insurance against this terrible accident is eternal vigilance on the part of the nurse. She must always have her eyes on the patient and her hands frequently in the bath water.

There are two other serious possibilities:

First, *drowning.* If a patient should faint from any cause or have a convulsion and the nurse was not watching carefully, the patient's head might slip down into the water and drowning would occur. Many of these patients are actively suicidal. Some who have not shown any suicidal tendencies may be suicidal. The chance of death by drowning may suggest itself to one of them and in an instant, upon the impulse of the moment, the head may be drawn under the cover and submerged. *The nurse cannot be too watchful.*

Second, *convulsions.* These sometimes occur. There is always the possibility of heat prostration when a patient has a convulsion in the tub. The patient should be immediately removed from the bath, protected from drafts, and otherwise cared for under the direction of the physician.

Effects

The good effects of the continuous bath depend upon keeping the bath at neutral temperature, between 92° and 97° F. It may, upon the order of the physician, be permitted to remain at 90° F. during the warmest hours of a very hot summer day. If a frail, poorly-nourished patient complains of being cold in water at a temperature of 96° or 97° F. the temperature of the water may be elevated to 98° or 100° F. for five or ten minutes. This is never done at the discretion of the nurse but upon the order of the physician, who then assumes the responsibility.

When a patient is inactive in the bath the pulse usually becomes slower. The activity of the skin as a respiratory organ is suspended but respiration by the lungs is not affected. The checking of the elimination of sweat by the skin throws additional work upon the kidneys so that the urine eliminated is increased in quantity. The acidity of the urine is decreased.

In absolutely neutral continuous baths there is no circulatory nor thermic reaction. There is some cooling of the surface of the body in a bath at 92° or 94° F. If this temperature of the water is slightly below that of the skin, and the inactivity of the soothed patient permit the elimination of some heat from the surface of the body, the internal temperature of the body remains normal.

As a result of the cutting off of those reflex influences due to the contact of the skin with the air at a temperature below that of the body, heat production is lessened. The activity of the thermogenetic processes in the muscles is annulled. This effect of the bath necessitates special care to avoid chilling by afterexposure to cold air. The patient should recline for one hour after the bath and have enough covering to prevent chilling, but not enough to overheat the body.

It is a well-known fact that no water is absorbed through the skin. One author advances the following theory about the soothing effects of the prolonged bath: With most of the skin of the body surrounded by water, insensible perspiration is suspended and the fluid usually eliminated by that means accumulates in the skin. The cutaneous nerve endings thus become supersaturated. This absorption of uneliminated fluid by nerve filaments lessens nerve sensibility. As a result the nerve centers are at rest and are given a chance to accumulate a store of nutrition and energy. Consequently, delirium, agitation, excitement, and motor activity are relieved, sleep is induced, and the regeneration of nervous tissue takes place.

Complications

Bath rash. Occasionally a patient develops a slight eruption upon the chest, shoulders, or some other skin area. It is usually difficult to ascertain why that patient's skin reacts to water in that manner. The bath is omitted for two or three days and the rash promptly disappears.

Bath pruritus. Patients who habitually have itching of the skin after a bath of any temperature will not be free from it after the neutral continuous bath. However, the intense itching (usually most intense in the skin of the legs below the knees) will subside in from 10 to 20 minutes if the patient is thoroughly dried, dusted with talcum powder, and covered in bed with warm, dry, soft linen or cotton sheets.

Abrasions. If these occur dry the patient thoroughly and dust the abrasions with stearate of zinc. If they do not heal promptly the baths should be discontinued temporarily and especial attention given to treatment of the abrasions.

Therapy

Continuous baths are prescribed some time during the course of almost every psychosis, to relieve excitement, agitation, delirium, increased motor activity, renal insufficiency or insomnia. They are also employed in the treatment of extensive burns and in decubitus of the paralyzed.

Prescribing Hydrotherapy

While there are some forms of illness in which hydrotherapy is inert or positively contraindicated, it has a wide field of usefulness. In general hospitals, especially those in which clinics are held for the instruction of medical students, the hydrotherapy is perhaps most frequently prescribed by physicians who specialize in physical therapy. However, with the increasing general interest in all forms of physical therapy, physicians specializing in almost every branch of medicine and surgery are utilizing the facilities of the well-equipped hospital. The orthopedist prescribes whirlpool baths and Scotch douches; the dermatologist, continuous baths; the urologist, sitz baths; the obstetrician, sitz baths and hot-blanket packs; the gynecologist, sitz baths and partial packs; the neurologist, douches and hydroelectric baths, and the internist, Brand, Burr, and Nauheim baths and partial packs.

In order that the desired therapeutic effects should follow the treatments, it is imperative that they be most carefully prescribed. The temperature and duration of all local and general applications of water (hot, cold, or neutral) should be stated in the prescription and when douches are ordered the pressure should be prescribed.

Intelligent prescribing, observation of patients during treatments, and careful reading of the records of the reactions by the physician are essential to the success of hydrotherapy for the mentally ill. It is as important that the physician should prescribe the hydrotherapy as it is that he should prescribe the tonic, sedative, or hypnotic drugs required by the patient.

Prescription and Record Blanks

The following described prescription and record blanks were adopted by the Massachusetts Department of Mental Diseases four years ago:

Form A-38 for Tonic Baths. This blank has columns for date, pulse, respiration, and reactions to needle spray, fan and jet douches, and thermic reaction. It has a broad central space for the record of reactions to preparatory treatments.

Form A-37 for Continuous Baths. This blank ruled on both sides has spaces for several treatments. At the head are spaces for the patient's name, the hours of duration, the temperature, and the physician's initials. Each treatment space on the blank has three narrow columns in which to note the hour, the pulse, and the temperature of the bath water and a wide central space for other notations.

Form A-36 for Wet-Sheet Packs. As wet-sheet packs are often ordered once, twice, or thrice daily for several successive days, one prescription often answers for several days. The prescription is printed at the head of the blank. Spaces are left for the patient's name, the date, the temperature, the number of times daily or the words "as ordered" and the physician's initials. As many packs are administered by attendants who are not accustomed to recording details, a paragraph below the prescription tells the nurse or attendant exactly what to record.

Summaries

Following the record of six, twelve, or eighteen treatments the physician writes a summary across the page disregarding the perpendicular lines on the form. It is based upon the records of the treatments, upon reports from the wards, and upon his own observation of the patients upon the occasion of his visits to the wards and to the hydriatric suites.

The patient's appetite, state of nutrition, weight, condition of the bowels, blood pressure, blood-cell count, differential white-cell count, hemoglobin percentage, and any abnormal conditions of the urine should be noted in the first summary. This furnishes a basis for comparison. A weekly weight record is kept. The rate and quality of the pulse are closely watched.

It is desirable to keep all of the records of each patient's daily hydriatric treatment, both tonic and sedative, in one file separate, on account of its bulk, from the continued notes usually dictated by the ward physician. This file contains accurate records of daily treatments by the nurses who gave them and summaries dictated by the ward physicians, a complete record of each patient's hydrotherapy. The information is useful to the physician *when dictating continued notes and when consulting with others about the patient. The file contains valuable material for future authentic articles upon the results of hydrotherapy.*

The Monthly Report

Form A-41 is a Monthly Report Blank. These are kept in the continuous-bath and packrooms and notations are made every day. Each blank has a column for the names of patients and after each name there are 31 small squares in which the number of hours occupied by the treatments are recorded. At the end of the month these are added by the hydrotherapists and included in a monthly report of all hydrotherapy administered in the hospital. The same blank serves the hydrotherapist for enumerating the tonic baths from day to day.

The monthly report of the hydrotherapist is typewritten upon plain paper. It has three or more parts. *The first part* names and enumerates the tonic baths. These include the foot baths and wet-sheet packs given as preparatory treatments. Three columns show the number of treatments given to male and female patients and the total. The psychoses of the patients are then named, three columns showing the number of males, females, and the total. The psychoses of the patients who have been discontinued are enumerated in three columns. The reasons for discontinuing treatments and whether the patients are improved or not improved are stated.

The second part is a tabulation of the continuous baths administered during the month. The number of male and female patients treated, the number of baths of each sex, the number of hours for each, and their totals are given. The psychoses of the patients who were treated are named and enumerated. The psychoses of those who have been discontinued are noted, as in the first part.

The third part is a tabulation of the wet-sheet packs administered to patients in the wards or in the packrooms. The form used for the continuous baths is followed.

The fourth part. If any general or local massage has been administered, it is briefly reported under the heading of *massotherapy.*

Ward hydrotherapy is the heading used for brief reports of fomentations, saline baths, wet-mitten friction, and other treatments administered to patients in their rooms. *Local electric-light treatments* which were not administered in the hydriatric suite are given this separate heading.

The fifth part. The hydrotherapists have usually given lessons in wet-sheet pack envelopment to a number of new attendants and nurses, in the technic of tonic and continuous baths to one or more nurses in training, and have demonstrated treatments as some physician has lectured. These are reported under the heading *Instruction.*

Six copies of the monthly report are typewritten. The original is for the superintendent and is filed. Two are for the assistant superintendent and other physicians, one is for the superintendent of nurses, and there is one for each hyrotherapist.

Instruction

Throughout the last thirty-five years of his life, Dr. Simon Baruch emphasized, in lectures before medical educators and in his books, the importance of hydrotherapy in the curriculum of the medical school. As a result, the general principles of hydrotherapy are now taught in most of the medical schools in the United States and Canada. Dr. Baruch concluded the second edition of "The Principles and Practice of Hydrotherapy," 1903, with three pages on "Necessity for Instruction in Hydrotherapy."

He wrote: "The author hopes to bring the medical profession to a realization of the danger which by reason of their indifference threatens them and their *clientele,* by presenting the above brief *résumé* of the history of water as a remedy. He would urge most earnestly a careful, conscientious, and thorough investigation of its physiological and clinical claims, and the introduction of means for better instruction of medical students in the theory and practice of hydrotherapy.

"Vogel regards 'the insufficient education of medical men in physical therapeutics, especially in hydrotherapy, as a serious defect, which injures physicians in their earlier practice, and for which it is difficult to compensate later.' He justly holds that 'hydrotherapy should be taught in its entirety, as Winternitz has done, upon a physiological basis. By lectures and clinical demonstrations it should be brought before the student just as other therapeutic agents and methods are offered to him—as obligatory branches of study.'

"In this connection the views of Professor Vierodt, of the Heidelberg University, are of great interest, as showing that the seed which Winternitz many years ago sowed is now about to reach fruition in his own country. Vierodt says: 'All signs indicate that hydrotherapy will succeed in obtaining a distinct and clear position in medical science, and that it will correspondingly reach the consideration in medical instruction to which it is entitled. Hydrotherapy can be taught only practically, because it must be applied more individually than any other therapeutic agent.'

"Professor Vierodt has established an arrangement for baths, douches, massage, etc., in connection with his polyclinic, where trained attendants apply them under strict medical supervision with regard to temperature, duration, and force. One of his assistants resides near the institution and watches over its work. 'All expectations have been amply fulfilled. It is utilized for instruction of small groups of students in the polyclinic, who thus learn practically, under the personal supervision of the professor and his assistants, the indications for and application of the more simple and useful hydriatric methods. Experience gathered in this small institution warrants the recommendation that facilities for ambulant hydriatric treatment should be connected with every medical polyclinic, for the benefit of patients and students alike. *Hydrotherapy should be included in medical instruction,* not as a specialty; it should be brought completely into the domain of our scientific curative agencies by the careful selection of procedures and of cases to which it is adapted.'

"In Leipsic, Professor Windscheid, and in Jena, Professor Mathes, teach hydrotherapy. Professor Credè also insists upon the necessity of applying hydrotherapy and other physical remedies in the hospitals, and pleads for instruction in these branches in the universities. He claims with justice that 'if physicians were better versed in these branches, the field of operation of many quacks would be greatly curtailed.'

"With regard to the teaching of hydrotherapy in our schools, it is unnecessary to add anything to the pleadings of recognized teachers, with whose views the author is in entire accord. My personal intercourse with many physicians affords daily illustration of the truth of their statements and the correctness of their views. I would most earnestly commend to the consideration of the faculties of our progressive medical schools the example of the universities of Vienna, Heidelberg, Berlin, Jena, and Leipsic."

The Course for Medical Students

The first ten lectures of the course should cover the underlying general principles of hydrotherapy as discussed in each of the large textbooks on the subject. A very brief review of the anatomy and physiology of the skin, the nervous system and the circulatory system, and the physical properties of water is essential.

The rationale of the action of water in health, that is, the physiological effects of *hot* and *cold local* and *general* applications upon all of the tissues of the body should be discussed. The physiological effects of water at a *neutral temperature* and the place of *friction* with hydrotherapy should be covered. These lectures should be accompanied by demonstrations upon carefully selected healthy models. The demonstrations should be given by a skilled hydrotherapist under the personal direction of the physician who lectures.

Throughout the remainder of the year the course should consist of the presentation of cases, the resident and outpatients of the hospital who are receiving hydrotherapy. This should include complete records of physical and laboratory findings, diagnosis, an outline of treatment and notes on the improvement from day to day or week to week. If the expected therapeutic effects are not obtained it should be made very clear to the students why the patient failed to react favorably to hydrotherapy. Thus instructed, the young physician will enter hospital practice and later private practice fairly well acquainted with this portion of his armamentarium.

The Course for Pupil Nurses

While hydrotherapy is a large part of practical nursing and the pupil nurse who has studied the latest textbooks is acquainted with the underlying principles of the subject, it can be made very interesting and its value emphasized if her theoretical instruction includes a course similar to the one just outlined for medical students.

The technic of any hydrotherapeutic procedure cannot be learned from watching only one demonstration. Skill can be attained only with experience. However, after the pupil nurse has had this course she can begin her one or two months' practical work in the hydrotherapeutic department of the hospital with intelligent interest, perhaps enthusiasm.

Courses in Hospitals for Mental Diseases

In Massachusetts a hydrotherapeutist, your speaker, gives courses of instruction in the state hospitals. When the work was begun, several years ago, the institutions were all handicapped by the postwar shortage of nurses and physicians which necessarily limited the use of hydrotherapy in those institutions where equipment was installed. It required three years to get the work organized in the twelve hospitals. New buildings are being erected; new equipment is being installed; changes in personnel continue. The need of further instruction and reorganization make repeated visits desirable.

Three months was the average duration of the first visits. The duration of the return visit is from six to ten weeks, depending upon ever-changing conditions. Occasional surveys are made, the hydrotherapeutist spending one week at each hospital.

The course consists of assistance to those physicians who are just beginning to prescribe hydrotherapy, training two hydrotherapists and two assistant hydrotherapists in the technic of tonic and sedative treatments, giving many lessons in the technic of continuous baths and wet-sheet packs to nurses and attendants and giving lectures adapted to the various groups. The hydrotherapists, while becoming familiar with every detail of the practical work, are required to write answers to review questions on a number of articles on hydrotherapy and to study carefully two chapters on "Organization and Management of the Hydrotherapeutic Department."

When the practical work is going fairly well, lectures on the wet-sheet pack and the continuous bath, accompanied by demonstrations, are given to several groups of nurses and attendants. When the hydrotherapists and their assistants have become proficient in the practical work, they are required to demonstrate the treatments available in that hospital before the medical staff.

The hydrotherapeutist has sometimes given from eight to twelve lectures on hydrotherapy to the class of nurses in training. However, that service was of only temporary assistance to the hospital. The lectures on hydrotherapy to pupils of the school for nurses should be delivered by a physician of the hospital's staff.

References

One and three from manuscript, "Hydrotherapy in Hospitals for Mental Diseases."

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Fractures, Resumé of Cases[1]

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IT is the purpose of this paper to make a simple, concise, and rational presentation of the etiology, pathology, symptomatology, diagnosis, and treatment of fractures as a broad general class of lesions; and to give a résumé of the fracture cases treated at Charity Hospital from January 1, 1920, to January 1, 1925. In the short time allotted for the presentation of this discussion it is manifestly impossible to treat the subject in any other than the briefest and most fundamental manner. The fundamental facts regarding fractures are comparatively simple. The difficulty and mystery with which the subject is surrounded has been due largely to lack of emphasis placed upon primary considerations and more or less successful efforts to befog the discussion by unessential details and confusing rhetoric. While it is desirable and advantageous to undertake this discussion with an appreciative sense of its simplicity, it cannot be denied that the comprehension of individual cases is sometimes perplexing owing to certain physical limitations and that successful treatment is not infrequently difficult and occasionally impossible owing to the inherent pathology, inadequate facilities, the limitations of the patient or a lack of experience on the part of the surgeon. Quite aside, however, from any question of individual experience, the public and the courts are asserting with increasing and frequently costly emphasis the great advantage to the physician as well as the patient of the assurance and the protection of frequent consultation. Granting a fundamentally correct idea of the lesion, the results of the treatment will vary considerably according to opportunities of creating correct conditions and the exercise of sound judgment—judgment which comes only from close observation, prolonged study, and wide experience. An adequate idea of the fundamental considerations relative to fractures is not difficult to present or acquire. A competent and reliable judgment regarding fractures from the clinical standpoint cannot be thus readily imparted, it can be acquired only through extended experience and along this line it will be possible to give only broad general suggestions.

[1]Read before the Industrial Section of Cleveland Academy of Medicine, March, 1926.

Etiology

Frequency and Distribution. Regarding the frequency and distribution of fractures, the statistics available prior to 1916 indicate that fractures constitute about one seventh of all traumatic lesions. However, since the radiographic examinations has added its great element of exactness, together with the hazards incident to the ever-increasing number of automobiles, available statistics since 1916 indicate that fractures constitute about one fourth of all traumatic lesions. The distribution over the body varies somewhat in these statistics but the truth is probably approximated as nearly as possible at present by the general statement that about one half or 50 per cent of all fractures occur in the upper extremities, including the clavicle. About one fourth, or 25 per cent occur in the lower extremities and the remaining 25 per cent in the head and trunk. In rather striking distinction to this is the distribution of dislocations in which nearly 90 per cent occur in the upper extremity. The most frequent individual fractures are those of the phalanges of the hand (nearly 20 per cent); the ribs about 10 per cent; impacted fractures of the lower end of the radius nearly 8 per cent. These followed by the metacarpus, the so-called Pott's fracture, the tibia with or without the fibula, the bones of the cranium, the nasal bones, the clavicle, humerus, and the femur. In some statistics the ribs and the clavicle are placed higher (about 15 per cent each). The fractures of the fingers, ribs, and even the clavicle, are relatively of little importance. It will be seen that the most frequent fracture of established consequence is the so-called Colles fracture. The number of fractures appear to be largest in the decade between 20 and 30 years of age, though it has been stated that the proportion of fractures to the number of people living in any decade is largest from 30 to 40 years. Among children the most frequent fractures are those of both bones of the forearm, the lower end of the humerus, the clavicle, and the femur. Among adults the proportion of fractures in the upper and lower extremities is much more nearly the same. A very large proportion of fractures of the patella occur in adults. The proportion of males to females is nearly four to one.

The records show that from January 1, 1920, to January 1, 1925, there were treated at Charity Hospital, together with the fracture clinic, 1,957 fracture cases, an average of 390 cases per year or 33 a month; 549 of these cases were private and were handled by eight different surgeons; 1,408 cases were hospital cases that came under my direct supervision. There were 1,929 closed fractures and 28 open. Of the 549 private cases, 537 were closed and 12 open fractures. Of the fracture cases, 1,484 were males and 473 females. Of the males, 1,459 were closed fractures and 25 were open; of the females, 470 were closed and 3 open. Single fractures were present in 1,601 cases and multiple fractures in 356 cases. There were:

91 fractures of the skull	28 carpal bones
4 malar-bone fractures	71 metacarpal
8 nose	93 phalanges of the hand
42 jaw	40 pelvis
110 clavicle	110 femur
13 scapula	102 tibia
35 vertebrae	122 tibia and fibula
123 rib	83 fibula
1 sternum	15 patella
144 humerus	72 tarsal bones
276 radius	56 metatarsal
194 radius and ulna	53 phalanges of the foot
71 ulna	

In this series the greatest number of fractures occurred in the radius, next in the radius and ulna, followed by the humerus and tibia and fibula. Forty-four per cent or 877 were in the upper extremities and 613 cases or 31 per cent occurred in the lower extremities.

Because of incomplete records, age and occupation not always being given, accurate figures could not be obtained but the average age was approximately between 30 and 40 years. The youngest in the series was 22 months and the oldest 92 years.

Occupation does not play as important a role as formerly because of the great number of automobile accidents. It is of interest to note the records of the traffic accidents in Cleveland obtained from the police department, which show that in 1920 there were 2,487 accidents due to automobiles, 386 due to street cars, 159 to horse-drawn vehicles, and 54 due to bicycles, making a total of 3,086 cases with a total of 158 deaths, 142 due to motor vehicles. In the year 1924 there were 3,455 accidents due to motor vehicles, 152 due to street cars, 79 due to horse-drawn vehicles, and 20 due to bicycles, a total of 3,706 accidents and 185 deaths, 174 due to motor vehicles. For the five years 1920 to 1924 inclusive there were 16,194 traffic accidents, 14,281 due to motor vehicles, 786 proving fatal. To this great number might well be added many more that did not come to the attention of the police department.

Any industrial surgeon for the past ten years realizes that industrial fractures have been reduced almost 50 per cent due to the rigid enforcement of the laws of the state commission on safety appliances in all manufacturing concerns.

The records in the 1,957 cases show approximately 68 per cent were due to automobile accidents, 12 per cent due to industrial accidents, and 20 per cent due to miscellaneous causes such as falling off porches, down stairs, on icy pavements, etc. Seasonal variation is not so important as it was thought in former days. The modern city with surface transportation, a larger amount of summer building and extension, and a restriction of these activities in winter counterbalances any great increase in fractures caused by falls on the ice, or weather conditions.

Of the 28 compound fractures, 25 were males and 3 females; 12 were private cases and 16 were hospital cases; 9 were due to motor-vehicle accidents, 12 to industrial accidents, 3 to railroad accidents, 1 due to gunshot, and 3 were miscellaneous, i.e., kicking at a rat, falling downstairs, and a buggy accident. As regards age, the youngest was 10 years of age and the oldest 59, the average age 32 years.

As regards seat of fracture, 2 were in the skull, 1 the lower end of the radius, 1 of the ulna, 3 of the phalanges of the hand, 1 of the pelvis, 4 of the femur, 12 of the tibia, and 4 of the phalanges of the foot; showing 5 cases in the upper extremity and 20 in the lower.

Of these 28 cases of compound fracture, 12 cases were operated on, one on the skull, removing a depressed piece of bone, three on the femur, one wiring the fragments, and two applying bone calipers. Of the tibia, three had a debridement and plating operation and one a bonegraft for loss of bone substance. Of the phalanges of the fingers, two cases required the removal of one or several fingers on account of severe damage to the soft tissues and two cases of the phalanges of the toes also required the same treatment. The results were good in all of these cases with the exception of one of the four cases of the femur, requiring amputation for loss of bone substance, and a mild grade of infection; and in the 12 cases of the tibia two required amputation, one on account of osteomyelitis and the second on account of the failure of the bonegraft and contractures and deformity of the foot.

In this series of 28 cases there were three deaths, a mortality rate of 10½ per cent; two were due to compound fractures of the skull complicated by other injuries, and the third to tetanus following a compound fracture of the tibia and a fracture of the femur.

In the entire series of 1,957 cases there were 46 deaths, a mortality rate of little more than 2 per cent; 24, or over 50 per cent, were due to automobiles, four to industrial accidents, four to street cars, three to railroads, 9 to falling, one to coasting, and one to intoxication, trying to stop a fire department. Thirty-two of the deaths were in males and 14 in females. Eleven were private cases and 35 were hospital cases. Of the latter, 21 or 60 per cent died of fractured skulls. In the entire 46 deaths, 28 or 60 per cent died of fractured skulls. In the remaining 18 cases practically all had some other injury that was a factor in the cause of death, as follows:

Three cases of fractured ribs:
- First died of ruptured spleen.
- Second died of pulmonary embolus.
- Third died of lung complications.

Eight cases of fractured femur, including neck:
- First died of shock, had other fractures.
- Second died of tabes-myocardial disease and exhaustion.
- Third died of pneumonia.
- Fourth died of pneumonia.
- Fifth died of acute dilatation of stomach (multiple fractures).
- Sixth died of shock following operation for nonunion due to malposition.
- Seventh died of intra-abdominal injury.
- Eighth died of tetanus with compound fracture of the tibia.

Two cases died of shock following fractures of the pelvis with ruptured bladders, two following fractures of the spine (one from paralysis and the other from delirium tremens), and one case of fracture of the metatarsal bones from a ruptured liver, one of the humerus (death due to pernicious anaemia), and one of septic pneumonia following operation for fractured patella.

Causes

The causes of fracture, as you well know, are classified into (1) Predisposing causes. (2) Exciting, active, immediate, and determining causes. The predisposing causes are divided into:

1. Functional or physiological.
2. External influences. Occupation, season, and exposure.
3. Pathological conditions.
4. Intra-uterine and obstetrical.

Whether a fracture is caused by direct or indirect injury is ordinarily a matter of little practical value except insofar as the severity of an injury may suggest the possibility of a fracture or the nature of the injury may indicate the probable variety of fracture. In this connection I wish to emphasize strongly the great advantage of assuming the presence of a fracture in all instances of severe injury and the great safety to both patient and physician of treating such injuries as fractures until subsequent developments demonstrate the absence of involvement of bone. No harm is done and many compromising situations are saved by such a procedure. Relatively few fractures are due to direct injury, an example of which would be a fracture of the ulna at the point at which a blow is received in protecting the face from injury or a fracture from a bullet. The vast majority are due to indirect injury, the point of contact being distant from the point of fracture. The fracture may not be the result of external injury but merely unusual or exaggerated muscular action. These are not numerous. It is necessary to confine to this class those bone injuries which are caused by the exertion of the muscles through their insertion and not with the help of any external violence or restraint. The best illustration of fracture arising from true muscular action are in the patella and olecranon by direct pull of the muscles on the bone causing it to be torn apart. Muscular action with resulting fracture are found in accidents which are caused by great muscular exertions failing to meet the resistance expected. Excessive force in throwing an object which slips from the grasp may result in fractures of the humerus from the powerful action of the shoulder girdle muscles. Likewise in kicking violently at an object and missing it one may fracture the femur. In violent efforts of running with a misstep or slip, muscular action may pull off the lesser trochanter of the femur. The bones involved in these fractures are generally healthy and are those of robust adults. Muscular action may be combined with direct or indirect violence, and thereby become a contributory cause of fracture. This additional muscular action may greatly increase fracture violence and its continuance afterwards augment the displacement and local symptoms.

The pathology of fractures also involves alterations in structures outside of bone. Injury to the surrounding tissue may be due to the initial trauma or caused directly by fragments of bone through penetration. Any of the soft parts may be injured to any conceivable degree, muscles, nerves, blood vessels, and viscera and the possibility of such occurrences should always be considered. Blebs filled with serum or deep-colored blood are commonly found on the skin after fracture; by their presence they frequently preclude extensive splint application or operative interference. These extensive blebs are commonly found in the lower extremities in fractures of the tibia and fibula, therefore the possible danger of immediate application of plaster casts in this type of fracture. A possibility of paralysis, haematoma, active hemorrhage, thrombosis, altered blood supply leading possibly to gangrene, altered function due to subsequent contractures are only some of the complications which readily suggest themselves and scarcely require comment.

Symptoms and Diagnosis

The symptoms produced by a fracture are divided into two groups—the objective or positive (those which can be directly observed by the surgeon) and the subjective or those for his knowledge of which he has to depend more or less completely upon the statements of the patient. The former include the deformity of the limb or part, abnormal mobility at the point of fracture and crepitus. The second group includes loss of function, pain, and the history of the case. Also to this may be added constitutional symptoms. Pain is an important finding in fracture; it is constant except in some instances of pathological fracture or in conditions where normal innervation is lessened. When the patient keeps the affected part quiet after injury the amount of pain varies with the amount of injury and local reaction. Twisting or rotary movements applied gently to the arm or leg elicit pain at the fracture site, the jarring of a bone by slight knocks in its longitudinal axis or in the transverse axis by a percussing finger tapping causes pain. All unrecognized fractures cause pain if use of the part is persisted in. Sensitiveness, the term being reserved to indicate a sensation due to objective conditions such as pressure as distinguished from pain (the subjective sensation unrelated to external conditions) is of great importance. Here as elsewhere in physical examinations sensitiveness has vastly more localizing value than pain. The pain associated with a fracture may be diffuse occasionally distant, but sensitiveness is usually marked and convincing at or near the point of fracture. Sensitiveness due to the injury of soft parts without fracture or such injury distant from the point of fracture may be confusing but is usually less definitely localized and less tense. Marked sensitiveness, strictly localized, particularly if the bone is reasonably near the surface, even without other evidences of fracture, is extremely suggestive of at least a partial fracture such as a crack. Examples of this are seen in slight impacted fracture at lower end of the radius, and ribs, and slight greenstick fractures of the clavicle.

Deformity

This is principally due to the displacement of fragments which is a result of several factors, the fracturing force, weight of the distal portions of the limb, the pull exerted by certain groups of muscles, edema and ecchymosis infiltrating the soft parts about the seat of fracture. Deformity is not always present. Fissured fractures and some impacted fractures give little if any deformity. The recurrence of deformity when restraining forces are relaxed is often a distinguishing characteristic of fracture and serves to differentiate it from dislocation. Previous fractures and injuries should be taken into account as well as the asymmetry of uninjured long bones of the upper and lower extremities as these have an important legal bearing in medico-legal cases.

Abnormal Mobility

This is absolute proof of a fracture. It is sought by endeavoring to move one portion of the bone independently of the other and is practically always present in complete fractures of the long bones. It is absent in incomplete subperiosteal and impacted fractures and very limited in fractures of one of two paralleling bones. In some fractures the normal elasticity of the part or the proximity to a joint may simulate abnormal mobility and mislead the examiner. Error may thus occur in injuries of the sternum, ribs, and fibula near joints because there motion is the normal condition and in fractures in which the fragments are so small and deep seated that they cannot be firmly grasped. This diagnostic difficulty is often observed in fractures of the anatomical neck of the humerus, metatarsal fractures, and in atypical fractures of the upper end of the femur. Abnormal mobility may be readily demonstrated in the shaft of a long bone broken near its middle by placing the hand under the part at the supposed seat of fracture and endeavoring to raise it with this single point of support. Motion and angular displacement immediately take place. The absence of mobility must not be assumed until all forms of displacement have been attempted as it is likely that displacement may be possible only in certain directions.

Crepitus

Crepitus may be defined as a grating sound or sensation perceived by the patient or surgeon as he manipulates the fracture. In order that it may be elicited the ends of the fragments must be in apposition or capable of being brought into apposition, and depends upon the previous sign of mobility of the fragments. The obtaining of the slightest degree of unmistakable bone crepitus is positive evidence of fracture. Experience leads to quick recognition of this valuable sign and it can often be felt by gentle and nearly painless manipulation which should not be repeated if positive results are obtained. Forcible manipulation to elicit this sign is never indicated. The diagnosis can generally be made on other findings, either an anesthetic can be given to relax muscle spasm and permit a full examination or a radiograph can be taken. Other means of eliciting crepitus are the use of the palm of the hand over the chest especially in deep inspiration when fractured ribs or scapula are concerned, and direct auscultation with the stethoscope. Certain types of fracture are not likely to give crepitus. They are:

1. Marked overlapping of the fragments.
2. Separation of fragments as in the patella or olecranon.
3. Impaction and locked denticulated fragments in Colles fracture and in the femoral and humeral neck.
4. Incomplete fractures.
5. In certain pathological fractures.

Loss of Function

In fractures this is generally due to loss of continuity in the bone or the result of pain and muscular spasm. Motions which do not give pain at the seat of fracture and which may be performed by reason of a supporting parallel bone may allow function within certain limits. Loss of function may be absent in incomplete, partial and impacted fractures. It is a common occurrence to see patients walking around with fractures of the lower end of the fibula and, sometimes this is possible even in fractures of the upper end of the femur.

Constitutional Symptoms

Constitutional symptoms are those of shock or of a subsequent inflammatory process. In the usual closed fracture constitutional symptoms are generally slight. There may be a mild rise of temperature noticed during the first three or four days. In open fractures symptoms may arise as a result of the complications of this type of fracture, viz., inflammation incident to infection. In old age the symptoms are likely to be more marked and fractures may have serious terminations from complications in the senile that are rare in the young.

Diagnosis

Diagnosis is made on a combination of symptoms and signs previously mentioned. In the great majority of cases diagnosis is comparatively easy if a certain degree of care and judgment is exercised. All signs may be present in a given fracture, whereas only one pain may be present in others. No diagnosis should be made by rule; the surgeon should use every means at his disposal to verify or disprove fracture. Many instances of broken bones are not diagnosed and are consequently improperly treated because all the signs are not found. This is particularly so in regard to crepitus which should be relegated to its place of relative importance, viz., the last. Grave errors in diagnosis and risks of liability are run because some insist upon this sign as essential to clinical diagnosis of fracture. The greatest reliance can be placed on pain or localized sensitiveness. In recurring soreness or sensitiveness at a point on repeated examination, if there is no other plausible reason, with the history of trauma, diagnosis of fracture is quite safe. The greatest difficulty in diagnosis, I believe, lies in those cases combined with dislocation, the epiphyseal ends of bone and fractures around joints. Whether in the latter the mobility listed is normal or the crepitus is joint, fascial, ligamentous, tendonous, or in rare instances possibly bursal.

Roentgen Rays in Fracture Cases

There has been a growing tendency in both medicine and surgery to obtain all laboratory findings and radiographs before making even a preliminary diagnosis. This, I believe, is particularly true in the handling of fracture cases today, and is a wrong method of procedure as it lessens one's keenness in the art of diagnosis. As far as possible the radiogram should confirm the diagnosis rather than make it and a clinical diagnosis should be made in every instance. The great value of radiographs in surgery and medicine can hardly be estimated but it must be said, however, that too much reliance should not be placed on radiographs nor should it be allowed as legal evidence in fracture cases. Too many factors enter into its makeup, time and the angle of exposure, the skill of the individual making the picture, and the experience of the one interpreting the picture, allowing a great divergence of opinion. Knowledge obtained from the plates should be applied by clinical examination before a full diagnosis is made. Complete knowledge of the extent and planes of fractures cannot be obtained from one plate; in all joint fractures a radiograph in two planes should always be made, and no definite knowledge of impaction at the hip or complete displacement at other sites should be asserted without stereoscopic views. Routine use of the Roentgen ray preliminary to the treatment of all fractures is impossible and not essential. A plate made after reduction is very helpful if the reduction is not complete. Probable deformities can be reduced early with much relief to the patient without a wait of hours for a picture. A radiograph taken to show end results or late in the course of a fracture as a rule has no value except in the cases of failure of union to determine the amount of callus or to help decide on operation for malunion. The ultimate test of the fracture result is functional and not anatomical. Anatomical reposition seldom occurs except in open operations and not always then. If the patient secured a functional result without gross deformity no radiograph examination is necessary and slight displacements which are present in a large number of these cases might be interpreted by unskilled observers and lead to trouble. These displacements become effaced in the course of time when functional use readjusts the bone structure. It is well to remember that the radiologist is often no surgeon and the surgeon very often no radiologist; each must have a share in the interpretation of the X-ray plates and ought, therefore, to have a practical experience in each other's science. My plea for the future is a closer cooperation between the radiologist and the surgeon in the interpretation of plates, not only in fracture cases, but in surgical affections in general, thereby benefiting not only the surgeon but the patient as well.

Treatment of Fractures

The ideal objective in the treatment of all fractures is an anatomical and functional cure, to restore the fragments to a normal position so far as it is possible to do so and to give the patient the best functional result obtainable. It might be said that treatment has been neglected until Lane and others have forced a desire for better results both on the profession and the public. There is now a reversion to former keenness of diagnosis. When one studies Hamilton's "Fractures and Dislocations" it seems almost impossible to believe that the older masters of this type of surgery were able to know as much of the refined detail of fractures as they did without the help of the Roentgen ray. Open operation and a better knowledge of immediate pathology have really sharpened the practice of nonoperative care and, therefore, good can

be traced from the many unfortunate operative cases of the past few years. The handling of a fracture is in the main a mechanical problem, simple or complex: to employ mechanical means to produce physical results (reduction) or to oppose the displacing action of mechanical forces (retention). The surgeon who wishes to treat a case intelligently, not merely in a routine way, should seek to apprehend the elements of the problem, to visualize the reciprocal relations of the fragments, to call to mind the opposing forces, and correctly to estimate his power to affect or control the position of the fragments. If he is able to do this it will be comparatively easy to select appropriate means to obtain the desired results and also incidentally to form a correct judgment as to the merits of the methods offered for his choice. It must be remembered that in certain individual forms of fracture a complete anatomical restoration may be impossible and the acceptance of deviation from it, sometimes notable ones, may be compulsory. The attempt to obtain more than the physical conditions permit may even increase the defects and the judicious criterion is often to be found in the ultimate function rather than in form.

Division of Treatment

Treatment may be divided into:

1. First aid or immediate treatment.
2. Reduction of fragments, and retention or permanent treatment.
3. After treatment.
4. Operative procedure if indicated.

It is misleading often to speak of first aid or immediate treatment and permanent treatment because the two merge and in the treatment of any fracture in the beginning the surgeon should bear in mind the indications for permanent cure. That treatment which is rendered a fracture case between the time of the accident, whether in a factory or on the street or in the accident room of the hospital until the time when reduction and permanent fixation of the fracture is carried out, should be considered first aid. The treatment indicated is to relieve shock and pain, also the gentle and careful handling of the fracture, together with proper immobilization to prevent further pain, injury to the soft parts and greater displacement of the fragments and thus in not a few cases the prevention of converting a simple fracture into a compound one, also, in compound fractures the proper application of a tourniquet to control hemorrhage and an antiseptic dressing to the wound. In fracture cases admitted to the accident room of hospitals where the local or general condition of the patient is such that immediate reduction and fixation is not advisable, it is imperative that the accident surgeon should immobilize the affected parts before the case is transferred to the ward for further treatment and observation. This lack of care occasionally occurs, therefore I wish to stress this point. When the surgeon sees his case where reduction and retention is to be carried out and where a fracture is objectively evident as in the extremities, it should be temporarily immobilized so that no further damage can be done while further investigations are being made. Ascertain as far as possible the manner in which the accident happened, as this often gives valuable information; if shock be present it should be immediately treated. A general examination from the scalp to the toes should be carried out so that no other injury or injuries are overlooked, for instance, any intracranial, thoracic, or abdominal lesions. A careful examination of the ribs, spine and pelvis is extremely important. In one case of a fractured leg, much to the disturbance of our peace of mind, we found about a week after the accident that the patient was also suffering from a fractured pelvis. Therefore, if a general examination was essential in the past, too much emphasis cannot be placed upon it today in accident cases because the majority of fractures are due to automobiles where in general there is a multiplicity of lesions rather than a single one. The clothing should be removed from both the injured and corresponding uninjured regions in order to give opportunity for the comparison of anatomical landmarks. A clinical diagnosis of the fracture should now be made out as far as possible. This examination should be gentle, the symptoms should be solicited with a minimum of disturbance. Rough manipulation causes pain and reflex muscle spasm which defeats attempts to obtain diagnostic information and interferes with reduction. At times it is better to postpone thorough diagnostic examination of the seat of fracture until ready to proceed with reduction and fixation or until the other factors have been weighed. Whether aided by a radiograph or not after the diagnosis has been made the surgeon must next consider:

1. What is the best treatment for the fracture before him from the standpoint of the patient, considering age and physical condition, his environment, and the exact position of the fracture?
2. What method of treatment will cause the least distress and pain to the patient after its application?
3. What method will give the shortest disability and the best function?
4. What are the medico-legal aspects of the case?

The aged and those with weakened cardiac action or organic diseases should not be subjected for any length of time to a recumbent position in bed for fear of pulmonary or other complications, nor can weakened patients withstand the weight and confinement of massive splints and dressings; light splints made of molded plaster, aluminum wire and leather may be indicated. Complications of other injuries and shock of accident must be kept in mind and no treatment or manipulation which will cause more pain or increase the complications should be attempted. The need of anesthesia must be decided by the surgeon before reduction is attempted. It is wiser to use an anesthetic to obtain complete reduction than it is to cause the patient pain and fear by efforts of reduction without it. Repeated attempts cause increased local infiltration, edema, and muscular spasms. Early reductions minimize pain, favor the best circulation, and there is no muscle spasm and contracture to be combated as in late setting.

If there is a great deal of swelling it is far better both to immobilize and to elevate the parts until the swelling subsides before reduction is attempted.

Reduction

Reduction is defined as the replacement of a displaced fragment into a position which favors prompt bony union and return to function. Reduction is not always such a simple matter as it sounds. It may be done immediately by simple manipulation or it may result from several strenuous attempts or after a considerable period of extension by weight or mechanical traction by the use of the Steinman pin or bone calipers. Not all fractures result in displacement and consequently not all need reduction. The actual reduction of a fracture varies with the situation and variety of the lesion. No one method is applicable to all fractures. In fracture of the long bones reduction as a rule is accomplished by traction, counter-traction, manipulation, and lateral molding. Also one attempts to reduce the fragments by flexion of joints to overcome muscular spasm and then try to bring the lower fragment or fragments in proper relation with the upper by rotation, abduction, adduction, flexion, and extension combined with traction. Impacted fractures may be reducible only by considerable force which must be applied to break up the impaction before the readjustment is possible. Fracture associated with dislocation may often

be reduced by first reducing the dislocation and then the fracture.

The important feature in the treatment of fractures after proper reduction is the retention of the fragments in proper alignment and the prevention of subsequent deformities. This can be accomplished by fixation, traction, combined fixation with traction with or without suspension and ambulatory dressings. One has the choice of a great variety of splints and dressings of various shapes and materials. No one splint should be used for certain types of fracture unless that splint is open to modifications to suit the individual case. The splint should aim toward permanent correction in accordance with previous statements, it should afford protection from outside jars and exposure, it should rest the part, lessen pain and the danger of complications. The simplest splint that will carry out the various points of retention and give comfort to the patient should be the dressing of choice. It must be understood that by permanent dressing is not meant a dressing by which the fracture is excluded for several weeks or days from the observation of the surgeon. The shutting up of broken bones in fracture apparatus for long periods is to be deplored; it is a fruitful cause of undetected deformity, atrophy of muscles, rigidity, and ankylosis. After reduction has been obtained there is generally no need of local applications like lead water and laudanum and similar remedies; they often produce laceration of already devitalized skin and subcutaneous tissues; immobility and the prevention of muscular spasm are therapeutic agents of far greater value than local applications. The use of the icebag may be of some benefit by lessening the amount of exudate. Its use, however, should be carefully watched as it may cause areas of necrosis. Fracture dressings may be grouped under the following heads:

1. Those which secure fixation of the fragments by virtue of their inflexibility and prevent angular or lateral displacement and in which no traction is employed.
2. Those in which strong traction with countertraction is the principal feature upon which anatomical coaptation of fragments and their proper alignment depend.
3. Those in which moderate traction and indirect fixation are the means of retaining efficient reduction of the fragments. Very often there may be a combination of several features in the treatment used.

The following general rules apply in the application of all forms of dressings:

1. Do not apply tight bandages next to the skin of the limb.
2. Do not apply any dressing that is too constricting in character, or which does not allow for swelling to take place.
3. Have all splints well padded, preferably by sheet wadding; cotton becomes lumpy and may exert pressure where pressure is not wanted. Do not depend upon pads to reduce a deformity; contour splints molded to surface are preferable.
4. Splints which are not molded to the parts should be more carefully and more thickly padded with sheet wadding than molded ones.
5. Many surgeons fix splints to the parts directly with adhesive plaster and do not depend upon bandages alone for keeping splints in position. Remember that adhesive plaster may cause dangerous constriction.
6. In fractures of the long bones it is sometimes necessary to immobilize the joint above and below the seat of fracture to prevent rotation of the fragments but do not continue this long without some passive motion of the joints.
7. If pain persists after the dressings have been applied and constriction can be eliminated, one should be suspicious that reduction is not complete. This is especially true in Colles fracture.
8. Use general anesthesia a second time for reduction if the X-ray plates show a poor reduction of the fragments.
9. Before applying or reapplying a fracture dressing, the skin should be bathed or washed with diluted alcohol, dried, and dusted with talcum powder. If the skin is hairy it should be shaved before the fracture is dressed.
10. In dressing fractures of the extremities, keep the fingers or toes uncovered so that the color, coolness, or edema due to improper constriction may be noticed at once and proper measures taken to prevent harm. Do not fail to remember that Volkmann's ischaemic contracture and paralysis may be induced by a less degree of pressure than that which causes lividity and edema. Complaint of pain and tightness by the patient usually means that the doctor should remove and reapply the fracture dressing.
11. After the dressings have been applied to a compound fracture or to any fracture complicated by a wound or an extensive abrasion, antitetanic serum should be administered.
12. Examine fresh fractures daily after reduction for about a week, and correct immediately any deformity that may occur. Then examinations may be made every other day for a week or so.

The aftertreatment of fracture cases by hydrotherapy, physiotherapy, massage, and early passive motion of joints is a great aid in restoring function and lessening disability and should be carried out in every case if at all possible.

The treatment of compound fractures is mentioned only to say that a discussion of this subject would require a paper in itself. The same may be said in regard to the operative reduction of closed fractures. The indications and counterindications for operating, together with the kind of material to be used for internal splinting, is still a debatable question, and the literature is filled with diversified opinions of skilled and experienced surgeons. Skilled judgment is required in these cases.

Infection is the greatest danger and may take place either from local infection or through the blood stream. Therefore, the most careful general examination of the patient must be made for the presence of remote mild infections in various parts of the body and locally the condition of the skin and the tissues around the site of fracture must be observed before the operation is undertaken.

The kind of material to use for internal splinting should rest with the surgeon, based upon his skill and experience in this type of surgery. Personally, I believe that the material used such as the Lane plate or Parkham band, etc., is not the source of infection; infection is due to a lack of judgment in selecting the case or an error in surgical technic. It may be safely said that operative interference in closed fractures is legitimate only when there is an imperative surgical and mechanical need for internal correction and fixation and only after all means and methods have been carefully tried, and have failed.

In conclusion, my plea is a greater study and practice of the art of bonesetting and a reduction in unnecessary operation on fractures and where operation is necessary the use of only those methods which permit the highest type of bone surgery in all its art and science.

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The Dietitian's Department

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Suggestions and Correspondence Welcome.

THE TEACHING OF STUDENT NURSES AND STUDENT DIETITIANS[1]

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SINCE all hospital nursing schools are concerned with the education of the student nurse, and comparatively few hospitals train dietitians, we will discuss the former first. More and more, dietotherapy is recognized to be of prime importance in the treatment of the sick, and as the nurse is usually the one who must plan and prepare the trays for her patient, she must be well trained in this science. In the past, altogether too little time has been allowed for the teaching of this subject, but schools of nursing are gradually lengthening their courses until now, the outline that is suggested by the League of Nursing Education allows 60 hours of theory for dietetics and diet in disease.

There are several methods of approach in teaching, but the ultimate aim of all is to train the nurse in the preparation and service of food to the well and the sick. In order to fit her better for this important task, it is necessary that she know how to do simple cooking and to be familiar with the composition of foods. It is not her duty to prescribe special diets, but she must know how to carry out the order of the doctor. She should also become thoroughly familiar with the routine hospital diets of her training school and then she will be able to adapt herself more readily to the diet orders of other institutions in which she may later find herself.

To give the student nurse this broad training, practical work in the hospital diet kitchen as well as theoretical work are necessary. Ordinarily there is but one person in a hospital, especially if it be a small one, who is qualified to give this broad aspect of dietetic training and she is the dietitian who has completed a course of home economics in a recognized college or university. Here she has made a detailed study of the composition as well as preparation and serving of foods, and their relations to body needs. The medical profession is realizing more and more the importance of proper feeding in nearly all forms of illness, and every hospital, however small, should have at least one person on its staff with a sound scientific knowledge of foods. It is obvious that the training of nurses in this therapy is most essential. In private practice she must prepare the meals for her patients. She must know how to select, properly cook, and serve them. The latter is a detail which must not be overlooked for food may be so well selected as to fulfil all body needs and even be well cooked, but if it is not attractively served, it may be refused, for the appetite of the sick person is most unduly particular and variable. On the other hand, the nurse may be nursing in districts where it is impossible to secure the foods which she would like to serve, or those which have been prescribed, and from her knowledge of the composition of foods, she must know what substitutions she dares to make from those available.

The theoretical work in dietetics should be given after the courses in chemistry, and if possible, bacteriology and physiology or anatomy, have been completed. However, the first course should be given in the preliminary period, in order that the students may apply their knowledge to any food work which they may do in the hospital, such as setting and serving of trays or the preparation of beverages, etc.

As already mentioned, there are various methods of instruction, all of which strive at the same result, but probably the one most generally employed is the textbook method. I mean by that, closely following one particular text. There are many textbooks on the market. Some of these are excellent, but very often they do not meet the needs of the individual nursing school or else they are not suited to the qualifications of the students who are in training. Adjustments must be made from any text to fit the type of students (that is, their previous education), and to meet the dietary needs of the hospital. I do think there are advantages to students in having a good textbook of dietetics as a constant reference throughout their training. If the hospital provides a fairly good reference library, however, it is often of much more value as there is no universal text in dietetics, any more than there is in any other subject.

This textbook method of teaching very often is accompanied by cooking lessons, either in a special laboratory or in the hospital general kitchen at a time when it is not in use. If not, the practical work must be secured in the diet kitchen where all special orders are filled. This diet-kitchen training is very important and should be given to every student nurse, but it cannot accomplish the same results or take the place of a course in invalid cookery, in which trays are prepared and served by the student. Here, too, the principles underlying the method and reasons for preparing all kinds of foods can be emphasized and demonstrated. Students who studied cooking or dietetics in high school or college often ask if they may be excused from this laboratory course, but I never excuse them because here is where cooking and meal planning for the sick is studied, and here also, the serving of foods on trays is practiced. The technic of tray setting and handling of food is very important and in the laboratory with a small group, the instructor has an excellent opportunity to watch the individual students and to help them develop methods which will be of assistance to them throughout their nursing experience.

Too often, in the diet kitchen, large quantities of foods have to be prepared, or else, individual orders which have no relation to the assembling of the tray as a whole. On the other hand, in the laboratory, all kinds of foods which are served on breakfast trays, for example, are prepared in individual portions. The usual method is for two students working together, to prepare the entire breakfast tray, followed, of course, by the dinner and supper trays, in turn, studying the best types of foods for these meals. We want our nurses to be able to cook and serve trays for one patient, when they finish, not a whole ward full. Large-quantity cooking is not what they must know for their future work.

Another method of teaching employed in some training schools is the one generally used in colleges, viz., the lecture method. A textbook may or may not be required with this method, but in either case, it is not strictly followed. The lectures are given by the dietitian, with the possible exception of those in diet in disease, which are frequently given by a physician. The lecture method necessitates, or at least, suggests outside reading assign-

[1]Read before the Dietary Clinic at the Hospital Clinical Congress, June 24, 1927.

ments in various reference texts and recent medical magazines, and the preparation of charts and diagrams, possibly. Advantages of this method are: the correlation of facts secured from many sources, rather than one authority, and the supplementing and adaptation of the material to suit the needs of the individual school. Accompanying these lectures should be the same type of laboratory course as before mentioned. I do not believe that student nurses get enough practice in cooking a variety of dishes unless they have this special laboratory course. This work can be given in the general kitchen if there is no room for a cooking laboratory, but just as the laboratory is of the greatest assistance in the study of chemistry and bacteriology, so will it be found most helpful in working out the problems in dietetics. I have taught in hospitals where we held classes in the diet kitchen or general kitchen and found the method quite successful, and I am sure you will find many dietitians using it now. We had a simple set of individual utensils for each student and these were stored away when not in use to prevent their disappearance.

Of great assistance to the students when following either method of teaching, is to assign each of them a case requiring special diet treatment in the hospital and have them make a detailed study of that patient, taking into consideration all the factors, such as past history, physical examination, laboratory tests made, temperature, pulse, respiration, etc. They should follow the patient throughout his stay in the hospital and write a daily report on his condition, noting food taken, its effect, and the general condition of the patient on leaving the hospital. It is an interesting study and of great teaching value to the student.

You are doubtless familiar with the teaching outlines for dietetics as suggested by the League of Nursing Education. According to this outline there are two courses in dietetics. The first consists of 45 hours, divided into fifteen lecture periods of one hour each and fifteen laboratory periods of two hours each. This course is known as "elements of nutrition and cookery" and is given after the course in chemistry is completed, preferably during the preliminary period. The laboratory course gives a survey of cooking for the sick, with special emphasis placed upon the preparation of breakfast, dinner, and supper trays, while the lectures cover the study of foods and their uses to the body, body requirements, and the planning of balanced diets for normal individuals. This course is followed closely by the lectures in diet in special disease conditions, during the first year.

As this is the method which I have been following more or less closely, perhaps it would be interesting to you if I describe the course as I give it. Fortunately I have a well-equipped classroom which is used only for my cooking classes. It is small, accommodating only ten students, and as our classes are large, I have to divide them into several groups. This course is given during the preliminary period, and the laboratory work precedes the lectures for a part of the students. The lectures, however, are not given until after chemistry and anatomy have been completed.

Cooking Laboratory Outline

I. Preparation and serving of beverages.
II. Preparation and serving of fruits, cereals, tea, coffee, cocoa.
III. Preparation of eggs for breakfast trays.
IV. Breakfast trays. Two students prepare and serve complete breakfast tray.
V. Preparation of cream soups and broths.
VI. Preparation of meat substitute dishes.
VII. Preparation of salads.
VIII. Preparation of desserts. Include custards, gelatin desserts, puddings, and frozen desserts.
IX. Action of leavening agents (baking powders, and yeast). Preparation of plain cake, sponge cake, muffins, biscuits.
X. Preparation of supper (or luncheon) trays.
XI. Demonstration of dressing squab and skinning and boning fish. Principle of broiling steaks and chops.
XII. Preparation of potatoes and other vegetables in several ways.
XIII. Dinner trays. Preparation of full meat-free and general trays.
XIV. Children's diets. Trays prepared for following ages: 3-4, 5-7, 8-10.
XV. Laboratory final.

My lecture course consists of twenty periods of one hour each. It is a study of the composition of foods and their effects on the body. The first nine or ten lectures are devoted to a careful study of digestion and a detailed study of the six food principles: proteins, carbohydrates, fats, mineral matter, water, and vitamins, and their distribution in foods. I find colored food charts of great assistance as a means of emphasis, also the assignment of several hours a week to reference reading in various textbooks. After the students have a good general understanding of the composition of the various common foods, the remainder of the time is devoted to making a practical application. First, the energy requirements of normal individuals of different ages, and under various conditions, are studied. The students, themselves, are used as examples, and their energy requirements are figured out according to their weight, height, age, and activity, and then the diets are figured out to meet these requirements. Children's diet needs are also studied and their diets planned during infancy, the preschool age, and school age. There is much to be said about preventive dietotherapy and the importance of proper food habits being developed in the young child.

As soon after the completion of the preliminary period as possible, the course in diet in disease is given. This consists of 12 to 15 classes in which we study diets prescribed for special disease conditions. The first class or two is in the nature of a review of normal dietetics, including diets for children and the routine hospital diets. After this the various disease conditions requiring special diets are studied. In this course we use the case study to which I referred, also daily assignments are made which usually consist in the writing of suitable menus for the special disease conditions under discussion.

In addition to their classwork, students are assigned to the main diet kitchen or to one of the serving kitchens on the floors for a period of five weeks during their preliminary training. Here they act as assistants to the nurses in charge, or the dietitian in the diet kitchen. Later, as young nurses, they are placed in charge of the diet or serving kitchens on the floors. They also spend a few weeks in the milk laboratory in connection with their pediatrics training.

Toward the end of the senior year, a review course is given, which is a final clearing house and a summing up of all their previous dietetics training. To this class the students bring their questions and I have my long list to ask them. We review both the practical and theoretical courses, and I believe that it is a truly worth-while class. It also assists the nurses in their review for state-board examinations.

Training of Student Dietitians

So far the training of student dietitians has been confined to the large general hospitals and it seems to

be the logical place. Here they spend a required amount of time in each of several departments, so that by the time they have finished, they have had training in all phases of hospital dietetics. Small hospitals cannot give this broad training, for their departments are too small or they are entirely lacking in some phase of the work which the student dietitian should get. It is much easier for the young dietitian who has been trained in the large hospital to adapt herself to the routine of a small one than vice versa. When I speak of small hospitals I do not refer to any special size of institution, but one which is equipped to train dietitians should be a general hospital with many medical cases requiring special diets. It should have a quantitative or metabolism kitchen, private and ward patients, milk laboratory for infant formulas, nurses' and doctors' dining rooms and some sort of outpatient department with medical clinics and possibly a social-service department. Student dietitians need experience in buying, menu planning, supervision of employees, and if possible, they should be able to attend medical lectures and clinics. Small hospitals in small cities usually do not offer all of these training possibilities. It is hardly fair to take the student dietitian directly from college and keep her here for a period of six months, only to have her find at the end of that time, she is not equipped to accept a position in any but a small institution similar to the one in which she trained. On the other hand, training in large hospitals makes it possible for the student to decide which phase of dietetics she prefers, for she has had some experience in all phases. There are several types of positions open to her as, for example, taking charge of quantitative diets in a large hospital, or one in which there is a special metabolism kitchen, or administrative dietitian in a small hospital or assistant in a larger one, or she may wish to be a welfare or dispensary dietitian if she is interested in social problems. Some dietitians are assistants to doctors who make a specialty of diseases requiring special-diet treatment, and in these positions it is usually her duty to instruct the patients. These are only a few of the more usual types of positions which hospital-trained dietitians are now filling. Since there is such a large variety of positions available, it seems to me that dietitians should as far as possible, fit themselves for their particular choice while they are students, or at least make a beginning.

At Presbyterian Hospital we have recently reorganized our student-dietitian course, after a lapse of two or three years, during which it was discontinued. We are able to offer training along several lines as you will see from the outline, which is fairly representative of training courses in other large hospitals.

Six Months Course for Student Dietitians,
Presbyterian Hospital, Chicago
Entrance Requirements

1. Age. Not less than 22 years nor more than 30 years.
2. Education. Bachelor's degree from a recognized school of home economics with a major in nutrition and institutional management.
3. Health. Must be in good physical condition.
4. Uniforms. At least six plain white uniforms made with long sleeves, and plain white oxfords with rubber heels are necessary.
5. Living conditions. Board and laundry are furnished at the hospital, and $25 a month is allowed for a room outside.
6. Hours of study. An average of 48 to 52 hours weekly is required.

Outline of the Course

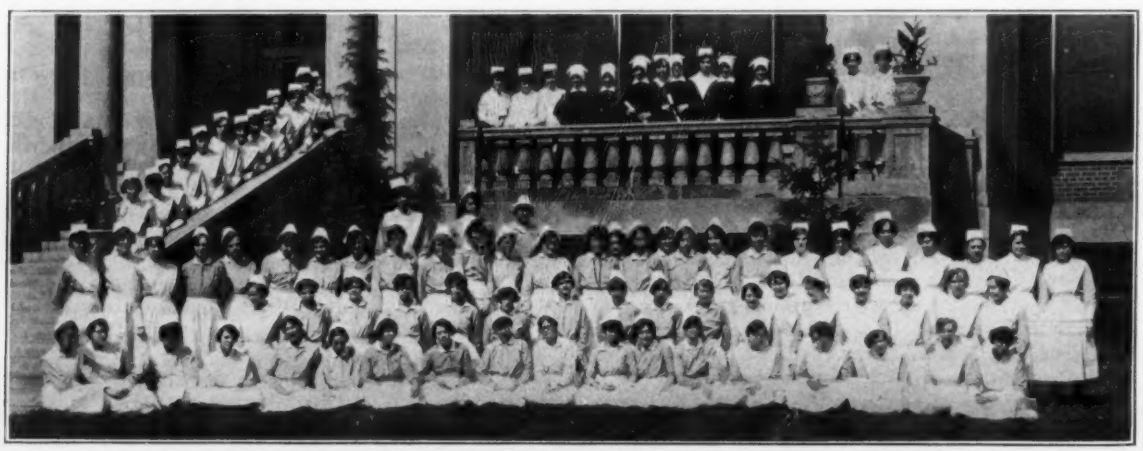
A. Hospital Training

1. Quantitative diet kitchen.
   Practice in the calculation, preparation, and service of weighed diets for private and ward patients.
2. Main diet kitchen.
   Training here includes the preparation of some special trays, supervising and checking of trays served from the diet kitchen, consulting patients about their diets, ordering and checking the supplies used in the diet kitchen, and supervision of employees.
3. Nurses' home.
   Planning of the nurses' menus. Buying trips with the director of the home. Observation in the preparation and service of food to nurses.
4. Social service.
   Case work in dietetics. Attendance at medical and nutrition clinics, metabolism department, and milk laboratory.

B. Theory

1. Attendance at lectures for nurses and medical students.
2. Assigned readings in recent magazines.
3. Attendance at the monthly meetings of the Chicago Dietetics Association.
4. Field trips to places of special interest.

We all know that physicians, these days, are using fewer drugs, and placing greater emphasis upon proper diet in combating disease. One of the recent discoveries will illustrate this, namely, the beneficial effects secured in the administration of liver in cases of anemia. Unquestionably many other discoveries will be made along this line. The field of dietetics is comparatively new, but it is a broad field, with great possibilities. It is a profession worthy of our best efforts and most conscientious study.



CLASS OF 1927, SCHOOL OF NURSING, ST. JOSEPH'S INFIRMARY, LOUISVILLE, KY.

Standardization the Watchword

THE American College of Surgeons has issued its tenth annual standardization report as of October 1, 1927. The 1927 survey has resulted in the full or conditional approval of 91.2 per cent of the 1,103 hospitals surveyed whose bed capacity is 100 or more; the approval of 59.9 per cent of the 975 hospitals surveyed which have a capacity of 50 to 100 beds; the approval of 22.6 per cent of the 376 hospitals surveyed which have a capacity of 35 to 50 beds; the approval of 100 per cent of the government hospitals surveyed; and the approval of 69.9 per cent of the 2,581 foreign hospitals surveyed. Hospitals of 25 to 35 beds also were surveyed but as the work was incomplete the results are not given. The standardization movement carried on by the American College of Surgeons in cooperation with other organizations has been accepted by the hospitals, the doctors, and the public with remarkable promptness as well as approval and cooperation. In 1918 only 89 hospitals or 12.9 per cent met the requirements, while in 1927, about 1,803 hospitals or 69.9 per cent are approved.

What Standardization is Doing

"The results of hospital standardization," says the report, "after ten years of progressive development are more gratifying and justify the movement. Possibly much more has been accomplished in this time than was really expected by its founders. Numerous advantages have accrued from the movement, a few of which may be briefly summarized as follows: (1) The providing of a better working environment for the doctor, the nurse, and others concerned in rendering service to the patient. (2) The focusing of more attention on the patient by the various groups and individuals concerned—the governing body, the medical staff, the superintendent and personnel, and others directly or indirectly sharing in this work. (3) The improved administration of hospitals through more adequate physical facilities for administrative and technical purposes; better organization setting forth more clearly duties, relations, and responsibilities; more efficient trained personnel under competent supervision; better thought-out and tried administrative and technical procedures, standardized as far as possible, and more careful check-up and supervision over all departments of the hospital. (4) The promotion of better cooperation and coordination among the three groups primarily interested in the hospital—the governing body, the medical staff, the superintendent, and personnel. (5) The improvement of hospital results through the shortening of the average days' stay of patients; the lowering of hospital death rates; the elimination of incompetent professional work; the minimizing of complications, and the general improvement in results. (6) The increasing of interest of the medical staff in scientific medicine and clinical research through consultations, staff conferences, group study, better means of investigation and application of scientific knowledge. (7) The development of greater confidence of the public hospitals through knowing that they are functioning in accordance with universally recognized standards of service."

The Minimum Standard

In order to obtain the approval of the American College of Surgeons a hospital must conform to the following minimum requirements:

1. That physicians and surgeons privileged to practice in the hospital be organized as a definite group or staff. Such organization has nothing to do with the question as to whether the hospital is "open" or "closed," nor need it affect the various existing types of staff organization. The word *staff* is here defined as the group of doctors who practice in the hospital inclusive of all groups such as the "regular staff," "the visiting staff," and the "associate staff."

2. That membership upon the staff be restricted to physicians and surgeons who are (*a*) full graduates of medicine in good standing and legally licensed to practice in their respective states or provinces; (*b*) competent in their respective fields and (*c*) worthy in character and in matters of professional ethics; that in this latter connection the practice of the division of fees, under any guise whatever, be prohibited.

3. That the staff initiate and, with the approval of the governing board of the hospital, adopt rules, regulations, and policies governing the professional work of the hospital; that these rules, regulations, and policies specifically provide:

a) That staff meetings be held at least once each month. (In large hospitals the departments may choose to meet separately.)

b) That the staff review and analyze at regular intervals their clinical experience in the various departments of the hospital, such as medicine, surgery, obstetrics, and the other specialties; the clinical record of patients, free and pay, to be the basis for such review and analysis.

4. That accurate and complete records be written for all patients and filed in an accessible manner in the hospital—a complete case record being one which includes identification data; complaint; personal and family history; history of present illness; physical examination; special examinations, such as consultations, clinical laboratory, X-ray, and other examinations; provisional or working diagnosis; medical or surgical treatment; gross and microscopical pathological findings; progress notes; final diagnosis; condition on discharge; follow-up and, in case of death, autopsy findings.

5. That diagnostic and therapeutic facilities under competent supervision be available for the study, diagnosis, and treatment of patients, these to include at least (*a*) a clinical laboratory providing chemical, bacteriological, seriological, and pathological services (*b*) an X-ray department providing radiographic and fluoroscopic services.

These requirements are analyzed and elaborated upon in the *Hospital Standardization Report for 1927*. Suggestions are given for the carrying out of each of the requirements. For example, a method of choosing the staff members is suggested, also the method of organizing the staff into an efficient body for performing its service to the hospital and improving the efficiency of its own members by careful study of their work put into the form of case histories. The data to be included in the case history is carefully outlined. The laboratory, X-ray, anesthesia, obstetrical, outpatient, casualty, traumatic, physiotherapy, consultation, surgical, nursing, autopsy, dietary, and social service are all treated at length in the report bulletin.

The approved hospitals are all listed by states. An interesting feature of this detailed report for 1927 is the designation of the governing body of each hospital. The latter feature makes it comparatively easy to compile the following list of Catholic hospitals represented:

Catholic Hospitals on Approved List

Alabama

Hospital	Capacity	Governed by	Rating
St. Vincent's (Birmingham)	110	Srs. of Charity	Fully App.
City Hospital (Mobile)	150	City-Srs. of Charity	Fully App.
Providence Infirmary (Mobile)	100	Srs. of Charity	Fully App.
St. Margaret's (Montgomery)	140	Srs. of Charity	Fully App.

Arizona

St. Joseph's (Phoenix)	126	Srs. of Mercy — Fully App.
Mercy Hospital (Prescott)	35	Srs. of Mercy — Fully App.
St. Mary's and Sanitorium (Tucson)	120	Srs. of St. Joseph — Conditioned

Arkansas

St. Edward's Mercy (Ft. Smith)	75	Srs. of Mercy — Conditioned
St. Bernard's (Joncsboro)	110	Benedictine Srs — Fully App.
St. Vincent's Infirmary (Little Rock)	150	Srs. of Charity — Fully App.
Michael Meahger Mem. Hosp. (Texarkana)	75	Srs. of Charity — Fully App.

California

Mercy Hosp. (Bakersfield)	100	Srs. of Mercy — Fully App.
St. Mary's Long Beach	60	Srs. of Charity — Fully App.
Queen of Angels (Los Angeles)	115	Franciscan Srs — Conditioned
St. Vincent's (Los Angeles)	75	Srs. of Charity — Fully App.
Providence Hosp. (Oakland)	250	Srs. of Providence — Fully App.
Mater Misericordia (Sacramento)	150	Srs. of Mercy — Fully App.
Mercy Hosp. (San Diego)	235	Srs. of Mercy — Fully App.
Mary's Help (San Francisco)	160	Srs. of Charity — Fully App.
St. Joseph's (San Francisco)	232	Franciscan Srs — Fully App.
St. Mary's Hosp. (San Francisco)	235	Srs. of Mercy — Fully App.
O'Connor Sanitarium (San Jose)	100	Srs. of Charity — Fully App.
St. Francis' (Santa Barbara)	100	Franciscan Srs — Fully App.
St. Joseph's Home & Hosp. (Stockton)	116	Srs. of St. Dominic — Conditioned

Colorado

Glockner Sanatorium and Hosp. (Colorado Springs)	225	Srs. of Charity — Fully App.
St. Francis' (Colorado Springs)	150	Srs. of St. Francis — Fully App.
Mercy Hosp. (Denver)	160	Srs. of Mercy — Fully App.
St. Anthony's (Denver)	180	Srs. of St. Francis — Fully App.
St. Joseph's (Denver)	225	Srs. of Charity — Fully App.
Mercy Hosp. (Durango)	35	Srs. of Mercy — Conditioned
St. Mary's (Grand Junction)	67	Srs. of Charity — Fully App.
St. Mary's (Pueblo)	150	Srs. of Charity — Fully App.
Mt. San Rafael (Trinidad)	75	Srs. of Charity — Fully App.

Connecticut

St. Vincent's (Bridgeport)	238	Srs. of Charity — Fully App.
St. Francis (Hartford)	480	Srs. of St. Joseph — Fully App.
St. Raphael's (N. Haven)	210	Srs. of Charity — Fully App.
St. Mary's (Waterbury)	220	Srs. of St. Joseph — Fully App.
St. Joseph's (Willimantic)	55	Srs. of Charity — Fully App.

District of Columbia

Georgetown Univ. Hosp. (Washington)	235	Univ. Bd. of Regents — Fully App.
Providence Hosp. (Washington)	340	Srs. of Charity — Fully App.

Florida

St. Vincent's (Jacksonville)	70	Srs. of Charity — Fully App.
Pensacola Hosp. (Pensacola)	115	Srs. of Charity — Fully App.

Georgia

St. Joseph's (Atlanta)	125	Srs. of Mercy — Fully App.

Idaho

St. Alphonsus' (Boise)	138	Srs. of Holy Cross — Fully App.
St. Joseph's (Lewiston)	100	Srs. of St. Joseph — Fully App.
Mercy Hosp. (Nampa)	35	Srs. of Mercy — Fully App.
St. Anthony's (Pocatello)	50	Srs. of Mercy — Fully App.
Providence Hosp. (Wallace)	65	Srs. of Charity — Fully App.

Illinois

St. Joseph's (Alton)	75	Srs. of Charity — Fully App.
St. Francis' (Blue Island)	100	Srs. of St. Mary — Fully App.
St. Mary's (Cairo)	100	Srs. of Holy Cross — Conditioned
Alexian Bros. (Chicago)	300	Alexian Brothers — Fully App.
Columbus Hosp. (Chicago)	150	Srs. of Sac. Heart — Fully App.
St. Anthony de Padua (Chicago)	210	Franciscan Srs — Fully App.
Mercy Hosp. (Chicago)	300	Srs. of Mercy — Fully App.
Misericordia (Chicago)	100	Srs. of Mercy — Fully App.
St. Anne's (Chicago)	154	Poor Handmaids of Jesus Christ — Fully App.
St. Bernard's (Chicago)	200	St. Joseph's Religious Hospitalers — Fully App.
St. Elizabeth's (Chicago)	225	Poor Handmaids of Jesus Christ — Fully App.
St. Joseph's (Chicago)	200	Srs. of Charity — Fully App.
St. Mary of Nazareth Hosp. (Chicago)	250	Srs. of Holy Family — Fully App.
St. Elizabeth's (Danville)	150	Franciscan Srs — Conditioned
St. Mary's (E. St. Louis)	318	Poor Handmaids of Jesus Christ — Fully App.
St. Francis' (Evanston)	175	Srs. of St. Francis — Fully App.
St. Francis' (Freeport)	140	Franciscan Srs — Conditioned
St. Elizabeth's (Granite City)	70	Srs. Divine Providence — Conditioned
Our Savior's (Jacksonville)	100	Srs. of Holy Cross — Fully App.
St. Joseph's (Joliet)	100	Srs. of St. Francis — Fully App.
St. Mary's (Kankakee)	100	Srs. of Holy Heart of Mary — Fully App.
St. Francis (Kewanee)	55	Franciscan Srs — Fully App.
St. Andrew's (Murphysboro)	50	Franciscan Srs — Fully App.
St. Francis' (Peoria)	250	Srs. of St. Francis — Fully App.
St Mary's (Quincy)	150	Srs. of Poor of St. Francis — Fully App.
St. Anthony's (Rock Island)	150	Franciscan Srs — Fully App.

Indiana

St. John's (Anderson)	65	Srs. of Holy Cross — Fully App.
St. Mary's (Evansville)	125	Srs. of Charity — Fully App.
St. Joseph's (Ft. Wayne)	220	Poor Handmaids of Jesus Christ — Fully App.
St. Mary's (Gary)	150	Poor Handmaids of Jesus Christ — Fully App.
St. Margaret's (Hammond)	300	Srs. of St. Francis — Fully App.
St. Vincent's (Indianapolis)	250	Srs. of Charity — Conditioned
St. Elizabeth's (LaFayette)	250	Srs. of St. Francis — Fully App.
Holy Family (La Porte)	95	Poor Handmaids of Jesus Christ — Fully App.
St. Joseph's (Logansport)	65	Srs. of St. Francis — Fully App.
St. Anthony's (Michigan City)	100	Srs. of St. Francis — Fully App.
St. Joseph's (Mishawaka)	100	Poor Handmaids of Jesus Christ — Fully App.
St. Edward's (New Albany)	85	Srs. of St. Francis — Fully App.
St. Joseph's (South Bend)	148	Srs. of Holy Cross — Fully App.
St. Anthony's (Terre Haute)	150	Srs. of St. Francis — Fully App.

Iowa

St. Anthony's (Carroll)	100	Franciscan Srs — Conditioned
Mercy Hospital (Cedar Rapids)	224	Srs. of Mercy — Conditioned
St. Joseph's (Centerville)	50	Srs. of Mercy — Conditioned
St. Joseph Mercy (Clinton)	70	Srs. of Mercy — Conditioned
Mercy (Council Bluffs)	106	Srs. of Mercy — Fully App.
Mercy Hosp. (Davenport)	141	Srs. of Mercy — Fully App.
Mercy Hosp. (Des Moines)	171	Srs. of Mercy — Fully App.
St. Joseph's Mercy (Dubuque)	125	Srs. of Mercy — Fully App.
St. Joseph's Mercy (Ft. Dodge)	110	Srs. of Mercy — Fully App.
Mercy Hosp. (Iowa City)	150	Srs. of Mercy — Fully App.
St. Joseph's Mercy (Mason City)	75	Srs. of Mercy — Fully App.
St. Joseph's (Ottumwa)	60	Srs. of Humility — Fully App.
St. Joseph's Mercy (Sioux City)	225	Srs. of Mercy — Fully App.
St. Vincent's (Sioux City)	125	Benedictine Srs — Fully App.
St. Francis' (Waterloo)	85	Franciscan Srs — Fully App.
St. Joseph's (Waverly)	50	Srs. of Mercy — Fully App.
St. Joseph's (New Hampton)	60	Srs. of Holy Ghost — Conditioned

Kansas

St. Joseph's (Concordia)	75	Srs. of St. Joseph — Fully App.
Mercy Hosp. (Ft. Scott)	50	Srs. of Charity — Conditioned
St. Rose's (Great Bend)	50	Srs. of St. Dominic — Fully App.
St. Anthony's (Hays)	60	Srs. of St. Agnes — Fully App.
St. Elizabeth's (Huchinson)	75	Srs. of Mercy — Fully App.
Providence (Kansas City)	65	Srs. of Charity — Fully App.
St. Margaret's (Kansas City)	400	Srs. of St. Francis — Fully App.
St. John's (Leavenworth)	50	Srs. of Charity — Conditioned
Mt. Carmel (Pittsburgh)	75	Srs. of St. Joseph — Fully App.
St. Anthony Murdock Memorial (Sabetha)	50	Srs. of St. Joseph — Fully App.
St. John's (Salina)	55	Srs. of St. Joseph — Fully App.
St. Francis' (Topeka)	75	Srs. of Charity — Fully App.
St. Francis' (Wichita)	230	Srs. of Sorrowful Mother — Conditioned
St. Mary's (Winfield)	50	Srs. of St. Joseph — Fully App.

Kentucky

St. Elizabeth's (Covington)	300	Srs. of St. Francis — Fully App.
St. Joseph's (Lexington)	175	Srs. of Charity — Fully App.
St. Anthony's (Louisville)	150	Srs. of St. Francis — Fully App.
St. Joseph's (Louisville)	300	Srs. of Charity — Fully App.
SS. Mary and Elizabeth (Louisville)	145	Srs. of Charity — Fully App.

Louisiana

Our Lady of the Lake (Baton Rouge)	100	Franciscan Srs — Fully App.
St. Patrick's (Lake Charles)	75	Srs. of Charity — Fully App.
St. Francis' (Monroe)	125	Franciscan Srs — Fully App.
Hotel Dieu (New Orleans)	185	Srs. of Charity — Fully App.
Mercy (New Orleans)	64	Srs. of Mercy — Fully App.
Shreveport Sanitarium & T. E. Schumpert Memorial (Shreveport)	250	Srs. of Charity — Fully App.

Maine

St. Mary's General (Lewistown)	140	Srs. of Charity — Fully App.
Sisters Hospital (Waterville)	100	Srs. of Charity — Fully App.

Maryland

Bon Secours (Baltimore)	60	Srs. of Bon Secours — Fully App.
Mercy (Baltimore)	250	Srs. of Mercy — Fully App.
St. Agnes (Baltimore)	210	Srs. of Charity — Fully App.
Alleghany Hosp. of Srs. of Charity (Cumberland)	100	Srs. of Charity — Fully App.

Massachusetts

Carney (Boston)	230	Srs. of Charity — Fully App.
SS. Margaret's and Mary's (Boston)	95	Srs. of Charity — Conditioned
St. Elizabeth's (Brighton)	290	Franciscan Srs — Fully App.
St. Anne's (Fall River)	86	Srs. of St. Dominic — Conditioned
Providence (Holyoke)	140	Srs. of Providence — Fully App.
St. John's (Lowell)	142	Srs. of Charity — Fully App.
Farren Memorial (Montague City)	75	Srs. of Providence — Fully App.
St. Luke's (Pittsfield)	150	Srs. of Providence — Conditioned
Mercy (Springfield)	200	Srs. of Providence — Fully App.
St. Vincent's (Worcester)	235	Srs. of Providence — Fully App.

Michigan

St. Joseph's (Ann Arbor)	200	Srs. of Mercy — Fully App.
Mercy (Bay City)	120	Srs. of Mercy — Fully App.
Mercy (Benton Harbor)	50	Bd. of Directors — Conditioned
Mercy (Cadillac)	50	Srs. of Mercy — Conditioned
Providence Hospital (Detroit)	387	Srs. of Charity — Fully App.
St. Joseph's (Detroit)	150	Srs. of Mercy — Fully App.
St. Mary's (Detroit)	300	Srs. of Charity — Fully App.

St. Mary's (Grand Rapids)	115	Srs. of Mercy	Fully App.
St. Joseph's (Hancock)	60	Srs. of St. Joseph	Conditioned
Mercy (Jackson)	60	Srs. of Mercy	Fully App.
Borgess (Kalamazoo)	100	Srs. of St. Joseph	Fully App.
New Borgess (Kalamazoo)	115	Srs. of St. Joseph	Fully App.
St. Lawrence (Lansing)	108	Srs. of Mercy	Fully App.
St. Joseph's (Mt. Clemens)	100	Srs. of Charity	Fully App.
Mercy (Muskegon)	80	Srs. of Mercy	Fully App.
St. Mary's (Saginaw)	78	Srs. of Charity	Fully App.
Minnesota			
St. Joseph's (Brainerd)	70	Srs. of St. Benedict	Conditioned
St. Mary's (Duluth)	280	Srs. of St. Benedict	Fully App.
St. Gabriel (Little Falls)	50	Franciscan Srs.	Fully App.
St. Joseph's (Mankato)	130	Srs. of Sorrowful Mother	Conditioned
St. Mary's (Minneapolis)	250	Srs. of St. Joseph	Fully App.
St. Mary's (Rochester)	500	Franciscan Srs.	Fully App.
St. Raphael's (St. Cloud)	84	Srs. of St. Benedict	Fully App.
St. Joseph's (St. Paul)	250	Srs. of St. Joseph	Fully App.
Missouri			
St. Francis' (Cape Girardeau)	75	Srs. of Charity	Fully App.
St. Mary's (Jefferson City)	60	Srs. of St. Mary	Fully App.
St. John's (Joplin)	75	Srs. of Mercy	Fully App.
St. Joseph's (Kansas City)	225	Srs. of St. Joseph	Fully App.
St. Mary's (Kansas City)	183	Srs. of St. Mary	Fully App.
St. Francis' (Maryville)	75	Srs. of St. Francis	Fully App.
St. Joseph's (St. Joseph)	185	Srs. of Charity	Conditioned
Alexian Bros. (St. Louis)	275	Alexian Brothers	Fully App.
St. Anthony's (St. Louis)	100	Franciscan Srs.	Fully App.
St. John's (St. Louis)	300	Srs. of Mercy	Fully App.
St. Louis Mullanphy (St. Louis)	125	Srs. of Charity	Fully App.
St. Mary's (St. Louis)	250	Srs. of St. Mary	Fully App.
St. Mary's Infirmary (St. Louis)	123	Srs. of St. Mary	Fully App.
Montana			
St. Ann's (Anaconda)	65	Srs. of Charity	Fully App.
St. Vincent's (Billings)	175	Srs. of Charity	Fully App.
St. James' (Butte)	165	Srs. of Charity	Fully App.
St. Clare's (Ft. Benton)	40	Srs. of Charity	Conditioned
Columbus (Great Falls)	150	Srs. of Charity	Fully App.
St. John's (Helena)	57	Srs. of Charity	Conditioned
Kalispell Gen. (Kalispell)	60	Srs. of Mercy	Conditioned
St. Joseph's (Lewistown)	65	Daughters of Jesus	Conditioned
Holy Rosary (Miles City)	120	Presentation Srs.	Conditioned
St. Patrick's (Missoula)	140	Srs. of Charity	Conditioned
Nebraska			
St. Joseph's (Alliance)	65	Srs. of St. Francis	Fully App.
St. Mary's (Columbus)	208	Srs. of St. Francis	Fully App.
St. Francis' (Grand Island)	185	Franciscan Srs.	Fully App.
St. Elizabeth's (Lincoln)	175	Srs. of St. Louis	Fully App.
Creighton Mem. St. Joseph's (Omaha)	420	Srs. of St. Francis	Fully App.
Nevada			
St. Mary's (Reno)	50	Srs. of St. Dominic	Fully App.
New Hampshire			
Notre Dame De Lourdes (Manchester)	85	Srs. of Charity	Fully App.
Sac. Heart (Manchester)	85	Srs. of Mercy	Fully App.
St. Joseph's (Nashau)	115	Srs. of Charity	Fully App.
New Jersey			
Alexian Bros (Elizabeth)	120	Alexian Brothers	Fully App.
St. Elizabeth's (Elizabeth)	160	Srs. of Charity	Fully App.
St. Mary's (Hoboken)	378	Srs. of St. Francis	Fully App.
St. Francis (Jersey City)	210	Srs. of St. Francis	Fully App.
All Souls' (Morristown)	103	Srs. of Charity	Fully App.
St. James (Newark)	125	Srs. of St. Francis	Fully App.
St. Michael's (Newark)	300	Srs. of St. Francis	Fully App.
St. Peter's General (New Brunswick)	106	Srs. of Charity	Fully App.
St. Mary's (Orange)	150	Srs. of St. Francis	Fully App.
St. Mary's (Passaic)	122	Srs. of Charity	Fully App.
St. Joseph's (Paterson)	268	Srs. of Charity	Fully App.
Holy Name (Teaneck)	183	Srs. of St. Joseph	Fully App.
St. Francis' (Trenton)	250	Srs. of St. Francis	Fully App.
New Mexico			
St. Joseph's (Albuquerque)	150	Srs. of Charity	Fully App.
St. Anthony's (E. Las Vegas)	56	Srs. of Charity	Conditioned
St. Mary's (Gallup)	75	Srs. of St. Francis	Fully App.
St. Mary's (Roswell)	60	Srs. of Sorrowful Mother	Fully App.
St. Vincent's (Santa Fe)	85	Srs. of Charity	Fully App.
New York			
Anthony N. Brady Maternity Home (Albany)	50	Srs. of Charity	Fully App.
St. Peter's (Albany)	135	Srs. of Mercy	Fully App.
St. Mary's (Amsterdam)	52	Srs. of St. Joseph	Fully App.
St. Jerome (Batavia)	65	Srs. of Mercy	Fully App.
Holy Family (Brooklyn)	110	Srs. of Charity	Fully App.
St. Catherine's (Brooklyn)	296	Srs. of St. Dominic	Fully App.
St. Mary's (Brooklyn)	310	Srs. of Charity	Fully App.
St. Peter's, (Brooklyn)	187	Srs. of St. Francis	Fully App.
Srs. of Charity Hosp. (Buffalo)	215	Srs. of Charity	Fully App.
Emergency Hosp. Srs. of Charity (Buffalo)	100	Srs. of Charity	Fully App.
St. Mary's (Buffalo)	144	Srs. of Charity	Conditioned
St. Joseph's (Elmira)	180	Srs. of St. Joseph	Fully App.
St. James' (Hornell)	70	City-Srs. of Mercy	Fully App.
Mary Immaculate Concep. (Jamaica)	92	Srs. of St. Dominic	Fully App.
Benedictine (Kingston)	85	Benedictine Srs.	Fully App.
St. John's (Long Island)	227	Srs. of St. Joseph	Fully App.
Columbus Hosp. Extension. (New York City)	110	Srs. of Sac. Heart.	Fully App.
Columbus Hosp. (N. Y. C.)	109	Srs. of Sac. Heart.	Fully App.
Misericordia (N. Y. C.)	340	Srs. of Misericordia	Fully App.
N. Y. Foundling (N. Y. C.)	305	Srs. of Charity	Fully App.
St. Francis (N. Y. C.)	450	Srs. of St. Francis	Fully App.
St. Mary's Children (New York City)	134	Srs. of St. Mary	Fully App.
Mt. St. Mary's (Niagara Falls)	160	Srs. of St. Francis	Fully App.
St. Francis' (Poughkeepsie)	80	Srs. of St. Francis	Fully App.
St. Mary's (Rochester)	194	Srs. of Charity	Fully App.
St. Joseph's (Syracuse)	235	Srs. of St. Francis	Fully App.
Troy Hosp. (Troy)	256	Srs. of St. Vincent de Paul	Fully App.
St. Elizabeth's (Utica)	110	Franciscan Srs.	Fully App.
Mercy Hosp. (Watertown)	93	Srs. of Mercy	Fully App.
St. Vincent's (West New Brighton)	100	Srs. of Charity	Fully App.
St. Joseph's (Yonkers)	85	Srs. of Charity	Fully App.
North Carolina			
Mercy (Charlotte)	65	Srs. of Mercy	Fully App.
St. Leo's (Greensboro)	100	Srs. of Charity	Conditioned
North Dakota			
St. Alexius (Bismarck)	155	Srs. of St. Benedict	Fully App.
St. John's (Fargo)	200	Srs. of St. Joseph	Fully App.
St. Michael's (Grand Forks)	65	Srs. of St. Joseph	Fully App.
Ohio			
Mercy (Canton)	96	Srs. of Charity	Fully App.
Good Samaritan (Cincinnati)	240	Srs. of Charity	Fully App.
St. Mary's (Cincinnati)	165	Srs. of St. Francis	Fully App.
Charity Hosp. (Cleveland)	275	Srs. of Charity	Fully App.
St. Alexius (Cleveland)	235	Srs. of St. Francis	Fully App.
St. Ann's (Cleveland)	324	Srs. of Charity	Fully App.
St. John's (Cleveland)	220	Srs. of Charity	Fully App.
Hawkes Hosp. of Mt. Carmel (Columbus)	225	Srs. of Holy Cross	Fully App.
St. Ann's (Columbus)	50	Srs. of St. Francis	Fully App.
St. Francis' (Columbus)	127	Srs. of St. Francis	Fully App.
St. Elizabeth's (Dayton)	440	Srs. of St. Francis	Fully App.
Mercy (Hamilton)	170	Srs. of Mercy	Fully App.
St. Rita's (Lima)	100	Srs. of Mercy	Fully App.
St. Joseph's (Lorrain)	120	Srs. of St. Francis	Fully App.
Mercy (Portsmouth)	75	Srs. of St. Francis	Conditioned
Mercy (Toledo)	100	Srs. of Mercy	Fully App.
St. Vincent's (Toledo)	390	Srs. of Charity	Fully App.
St. Elizabeth's (Youngstown)	275	Srs. of Humility	Fully App.
Good Samaritan (Zanesville)	145	Franciscan Srs.	Fully App.
Oklahoma			
St. Anthony's (Okla. City)	180	Srs. of St. Francis	Fully App.
Ponca City (Ponca City)	66	Srs. of St. Joseph	Fully App.
St. John's (Tulsa)	193	Srs. of Sorrowful Mother	Fully App.
Oregon			
St. Mary's (Astoria)	94	Srs. of Charity	Fully App.
Sac. Heart (Medford)	55	Srs. of Charity	Fully App.
St. Vincent's (Portland)	400	Srs. of Charity	Fully App.
Pennsylvania			
Sac. Heart (Allentown)	188	Bd. of Trustees	Fully App.
Mercy (Altoona)	111	Bd. of Directors	Fully App.
Providence (Beaver Falls)	55	Srs. of Charity	Fully App.
Du Bois (Bu Bois)	50	Srs. of Mercy	Fully App.
St. Vincent's (Erie)	220	Bd. of Trustees	Fully App.
Mercy (Johnstown)	108	Srs. of Mercy	Fully App.
St. Joseph's (Lancaster)	200	Srs. of St. Francis	Fully App.
Spencer (Meadville)	61	Srs. of St. Joseph	Conditioned
New Castle Hospital (New Castle)	121	Srs. of St. Francis	Fully App.
Misericordia (Phila.)	300	Srs. of Mercy	Fully App.
St. Agnes (Phila.)	331	Srs. of St. Francis	Fully App.
St. Joseph's (Phila.)	275	Srs. of Charity	Fully App.
St. Mary's (Phila.)	208	Srs. of St. Francis	Fully App.
St. Vincent's (Phila.)	127	Srs. of Charity	Fully App.
Mercy (Pittsburgh)	625	Srs. of Mercy	Fully App.
Pittsburgh (Pittsburgh)	200	Srs. of Charity	Fully App.
St. Francis (Pittsburgh)	625	Srs. of St. Francis	Fully App.
St. John's (Pittsburgh)	225	Srs. of Divine Providence	Fully App.
St. Joseph's (Pittsburgh)	130	Srs. of St. Joseph	Fully App.
St. Joseph's (Reading)	180	Srs. of St. Francis	Fully App.
Mercy (Wilkes-Barre)	148	Srs. of Mercy	Fully App.
Rhode Island			
St. Joseph's (Providence)	185	Srs. of St. Francis	Fully App.
South Carolina			
St. Francis Xavier (Charleston)	50	Srs. of Mercy	Fully App.
South Dakota			
St. Luke's (Aberdeen)	100	Presentation Srs.	Fully App.
St. Joseph's (Mitchell)	80	Presentation Srs.	Fully App.
St. Mary's (Pierre)	50	Benedictine Srs.	Fully App.
McKennan (Sioux Falls)	125	Presentation Srs.	Fully App.
Sacred Heart (Yankton)	100	Benedictine Srs.	Fully App.
Tennessee			
St. Joseph's (Memphis)	375	Srs. of St. Francis	Fully App.
St. Thomas (Nashville)	218	Srs. of Charity	Fully App.
Texas			
St. Anthony's (Amarillo)	50	Srs. of Charity	Fully App.
Hotel Dieu (Amarillo)	175	Srs. of Charity	Fully App.
Spohn Sanitarium (Corpus Christi)	50	Srs. of Charity	Conditioned
St. Paul's (Dallas)	300	Srs. of Charity	Fully App.
St. Joseph's (Ft. Worth)	125	Srs. of Charity	Fully App.
St. Mary's (Galveston)	212	Srs. of Charity	Fully App.
St. Joseph's (Houston)	250	Srs. of Charity	Fully App.
Mercy (Laredo)	35	Srs. of Mercy	Conditioned
St. Joseph's (Paris)	50	Srs. of Charity	Fully App.
Santa Rosa (San Antonio)	308	Srs. of Incar. Word	Fully App.
St. Vincent's (Sherman)	75	Srs. of Charity	Fully App.
Providence (Waco)	150	Srs. of Charity	Fully App.

Utah

Holy Cross (Salt Lake City)	225	Srs. of Holy Cross. Fully App.

Vermont

Bishop de Grosbriand (Burlington)	110	Srs. of St. Joseph. Fully App.
Fanny Allen (Winooski)	80	Srs. of St. Joseph. Fully App.

Virginia

St. Vincent de Paul (Norfolk)	254	Srs. of Charity. Fully App.

Washington

St. Joseph's (Aberdeen)	70	Srs. of St. Dominic. Fully App.
St. Joseph's (Bellingham)	75	Srs. of St. Joseph. Fully App.
Providence (Everett)	125	Srs. of Charity. Fully App.
St. Peter's (Olympia)	75	Srs. of Charity. Conditioned
Columbus (Seattle)	200	Srs. of Sac. Heart. Fully App.
Providence (Seattle)	343	Srs. of Charity. Fully App.
Sacred Heart (Spokane)	236	Srs. of Charity. Fully App.
St. Joseph's (Tacoma)	300	Srs. of St. Francis. Fully App.
St. Mary's (Walla Walla)	100	Srs. of Charity. Fully App.
St. Anthony's (Wenatchee)	60	Srs. of St. Joseph. Fully App.
St. Elizabeth's (Yakima)	157	Srs. of Charity. Fully App.

West Virginia

St. Mary's (Clarksburg)	125	Srs. of St. Joseph. Fully App.
Wheeling Hospital (Wheeling)	225	Srs. of St. Joseph. Fully App.

Wisconsin

St. Elizabeth (Appleton)	250	Franciscan Srs. Fully App.
St. Joseph's (Ashland)	165	Poor Handmaids of Jesus Christ. Fully App.
St. Joseph's (Dodgeville)	50	Franciscan Srs. Fully App.
St. Agnes (Fond du Lac)	250	Srs. of St. Agnes. Fully App.
St. Mary's (Green Bay)	125	Srs. of Miseri-cordia. Fully App.
Mercy (Janesville)	150	Srs. of Mercy. Fully App.
St. Catherine's (Kenosha)	56	Srs. of St. Dominic. Fully App.
St. Francis (La Crosse)	200	Franciscan Srs. Fully App.
St. Mary's (Madison)	160	Srs. of Mercy. Fully App.
Holy Family (Manitowoc)	100	Srs. of St. Francis. Fully App.
St. Joseph's (Marshfield)	150	Srs. of Sorrowful Mother. Fully App.
Marquette Univ. (Milw.)	155	Bd. of Trustees. Fully App.
St. Joseph's (Milwaukee)	135	Franciscan Srs. Fully App.
St. Mary's (Milwaukee)	203	Srs. of Charity. Fully App.
Sac. Heart (Milwaukee)	280	Srs. of St. Francis. Fully App.
St. Mary's (Racine)	106	Franciscan Srs. Fully App.
Sac. Heart, St. Mary's (Superior)	100	Poor Handmaids of Jesus Christ. Fully App.
St. Mary's (Wausau)	120	Srs. of Divine Savior. Fully App.

Canada

Alberta

Holy Cross (Calgary)	200	Srs. of Charity. Fully App.
St. Mary's (Camrose)	50	Srs. of Charity. Conditioned
Edmonton Gen. (Edmonton)	200	Srs. of Charity. Fully App.
Misericordia (Edmonton)	175	Srs. of Miseri-cordia. Fully App.
Vegreville Gen. (Vegreville)	40	Srs. of Charity. Fully App.

British Columbia

St. Paul's (Vancouver)	300	Srs. of Charity. Fully App.
St. Joseph's (Victoria)	165	Srs. of St. Joseph. Fully App.

Manitoba

St. Boniface (St. Boniface)	526	Srs. of Charity. Fully App.
Misericordia (Winnipeg)	226	Srs. of Miseri-cordia. Fully App.

New Brunswick

Hotel Dieu (Campbellton)	75	Srs. of Hotel Dieu. Fully App.
Hotel Dieu (Chatham)	52	Srs. of Hotel Dieu. Fully App.
Hotel Dieu, St. Joseph's (St. Basil)	80	Religious Hosps. of St. Joseph. Conditioned
St. John's (St. John)	116	Srs. of Charity. Fully App.

Nova Scotia

St. Martha's (Antigonish)	50	Srs. of St. Martha. Fully App.
St. Joseph's (Glace Bay)	103	Srs. of St. Martha. Fully App.
Halifax Infir. (Halifax)	50	Srs. of Charity. Fully App.

Ontario

St. Vincent de Paul (Brockville)	100	Srs. of Charity. Fully App.
Hotel Dieu (Cornwall)	60	Religious Hospitalers of St. Joseph. Conditioned
St. Joseph's (Hamilton)	170	Srs. of St. Joseph. Conditioned
Hotel Dieu (Kingston)	150	Religious Hospitalers of St. Joseph. Conditioned
St. Mary's (Kitchener)	96	Srs of St. Joseph. Conditioned
St. Joseph's (London)	160	Srs. of St. Joseph. Conditioned
Ottawa Gen. (Ottawa)	250	Srs. of Charity. Fully App.
St. Joseph's (Peterboro)	85	Srs. of St. Joseph. Fully App.
St. Joseph's General (Port Arthur)	116	Srs. of St. Joseph. Fully App.
General Hospital (Sault Ste. Marie)	150	Srs. of Charity. Fully App.
St. Francis General (Smith Falls)	50	Srs. of Providence. Fully App.
St. Joseph's (Sudbury)	125	Grey Nuns of the Cross. Fully App.
St. Michael's (Toronto)	295	Srs. of St. Joseph. Fully App.
Hotel Dieu (Windsor)	125	Religious Hospitalers of St. Joseph. Fully App.
Charlottetown (Charlottetown)	65	Srs. of Charity. Fully App.

Quebec

De La Misericordia (Montreal)	380	Srs. of Miseri-cordia. Fully App.
Hotel Dieu de St. Joseph (Montreal)	300	Religious Hosps. of St. Joseph. Fully App.
L'Hospital Notre Dame (Montreal)	284	Bd. of Admin. Fully App.
Hotel Dieu de Prexieux (Quebec)	250	Srs. of Hotel Dieu. Fully App.
St. Francois d'Assisi	100	Srs. of St. Francois d'Assisi. Fully App.
St. Vincent de Paul (Sherbrooke)	250	Srs. of Charity. Fully App.
St. Joseph's (Three Rivers)	95	Srs. of Charity. Fully App.

Saskatchewan

St. Elizabeth's (Humboldt)	52	Srs. of St. Elizabeth. Conditioned
Providence (Moose Jaw)	80	Srs. of Charity. Fully App.
Notre Dame (N. Battleford)	53	Srs. of Charity. Fully App.
Holy Family (Prince Albert)	66	Srs. of Charity. Fully App.
Regina Grey Nuns' Hosp. (Regina)	210	Srs. of Charity. Fully App.
St. Paul's (Saskatoon)	250	Srs. of Charity. Fully App.

Some Comparisons

The American College of Surgeons' list of approved hospitals for the year 1927 contains 1,676 hospitals in the United States and Canada, exclusive of government institutions. These hospitals have a total bed capacity of 270,697. Their average bed capacity is 161.5.

Of the hospitals in this list, 403 are Catholic hospitals with a total bed capacity of 62,601, an average capacity of 155 beds. In other words, the Catholic hospitals number 24 per cent of hospitals in the United States and Canada approved by the American College of Surgeons, excluding government hospitals and they have 23 per cent of the bed capacity of this list.

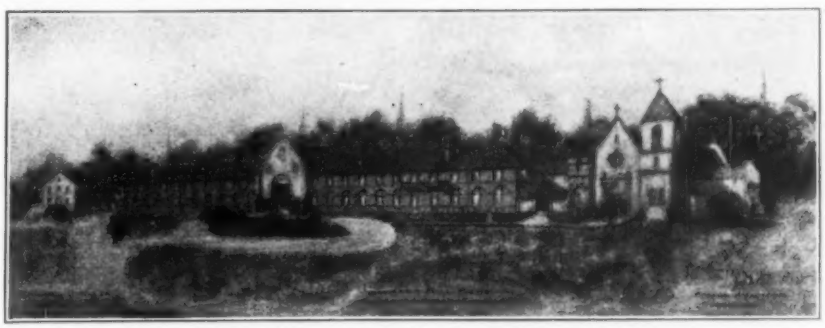
STUDENT NURSES, ST. JOSEPH'S HOSPITAL, BLOOMINGTON, ILL.

A Dream Come True

New Rosary Hill Home for Incurable Cancer Patients

The new Rosary Hill Home for incurable cancer patients at Hawthorne, N. Y., was solemnly opened and blessed by Cardinal Hayes on Sunday, October 2. The new home for the relief of the cancerous poor will accommodate 100 patients. It has been erected at a cost of $282,000, all but $41,000 of which has been paid by public subscription. Rosary Hill Home is situated on one of the highest of the Westchester hills overlooking the Bronx Valley. It is a two-and-a-half story, fireproof structure, designed after the old Spanish mission at Santa Barbara, Calif.

In praising the work of the Dominican Servants of Relief for Incurable Cancer Among the Poor, Cardinal Hayes said: "Christianity takes up the work of science when science has given all it possesses to the relief of incurables. Persons curably diseased are an object of pity, but far worse is the condition of poor incurables." The Cardinal asked his audience of 300 persons to give any service they might be able to give, spiritual or material, to this work.



NEW FIREPROOF BUILDING OF ROSARY HILL HOME WHICH THE LATE MOTHER M. ALPHONSA LATHROP, O.S.D., PLANNED AND LABORED FOR IN ORDER TO SECURE A SAFE HOME FOR HER POOR CANCER PATIENTS.

Mother Alphonsa's Dream

Thirty years ago Mrs. Rose Hawthorne Lathrop, on a visit to the East Side of New York, being deeply moved by the sight of impoverished victims of cancer, began to dream of founding a home for the decent care of such poor sufferers. But Mrs. Lathrop's dream was not made of the ordinary "stuff that dreams are made of." Renting some rooms in a dilapidated tenement house, she began the actual work of caring for destitute cancer patients. One who came to help her and afterwards received the religious habit with her, describes the life of those wretched quarters. She says:

"I went to the door and knocked; it was opened by a very untidy woman . . . another woman was ironing in the room (which proved to be the kitchen). I was shown into a good-size room opening from the kitchen (afterwards I learned that this room was the living room and dispensary; sometimes it served also as a bedroom when an extra patient came in). A fair, bright-faced woman (who was bandaging up an old woman's leg), rose from her work and came forward to meet me. "Do sit down," she said, "until I finish and then we can have a long talk." I sat down on a green sofa, the only comfortable thing in the room, and glanced about; everything was clean, but as crowded, poor, and simple as could be; Mrs. Lathrop was beautiful and youthful looking, with a mass of rich auburn hair; she wore a nurse's dress and her manner of dealing with the old woman was cheerful and simple. The old women themselves were not overclean, and were exacting in their demands; one seemed a good-natured little person, the second, a hard-working woman, and the third was a cross old lady with a stick which she planted firmly before her and gazed fiercely upon her companions. (I had the pleasure of improving the acquaintance of all three later on and found the old lady with the stick quite as fierce as she appeared to be)."

The visitor had a long talk with Mrs. Lathrop and began to come regularly to help her. Later she went to live there. She goes on to describe the hardship and poverty of their life in the old tumbledown tenement.

But in May, 1899, with the assistance of friends, they moved into a comfortable old-fashioned house at 426 Cherry Street, where they cared for twelve or fifteen patients at a time. This place they named St. Rose's Home.

Receives Dominican Habit

"It was there," says this former visitor, "that the Rt. Rev. Msgr. James T. McEntyre (then pastor of St. Teresa's) came to inspect the altar and chapel for the Blessed Sacrament, and shortly afterwards, in that same little chapel, Mother and I received the Dominican habit, from the hands of Rev. Clement M. Thuente, O.P."

But there was still the problem of securing quarters for male patients, as these could not be accommodated at St. Rose's Home. Renting other quarters proved unsatisfactory. In 1901 Rosary Hill at Hawthorne was secured and there a large number of male patients were accommodated. Mother Alphonsa took charge of the Rosary Hill Home.

The Religious Nurse

Mother Alphonsa realized the need of a Religious Order for the care of her cancer patients. When speaking of the failure of other attempts at such work she said: "The Nun does not belong to herself. Whatever she does that is well done is God's work and not hers, through His guidance of her labor by her constant remembrance of Him. . . . She has no interests outside of the home and its chapel; she has as few follies as a winged cherub in mid-air. The religious nurse who has no secular deputy is the best sort of friend and servitor that injured humanity can secure."

Speaking of the contentment of her patients, Mother Alphonsa once said: "Our Homes are far from full of sorrow. . . . The cancer patients adapt ideas to their state, and every little thing helps to brighten it. Some read a great deal, especially the men; and some women sew a great deal, fancywork principally. In both departments the ornamental months of the year are largely spent in gazing at things from the piazzas and summer houses, the men with their pipes and the women with their tongues. There are plenty of pet birds of various kinds, and there are fishes and newspapers and music in a daily swirl of attractiveness, much enhanced by the pet dogs belonging to the men, of which remarkable exploits are published, but not more startling than the feline jousts in pantry and hall, which give consolation to defenseless females, and sound magnificent when told. Some patients live for a number of years, against all prophecies, becoming very dear friends to the Sisters. It seems as if in no section of human existence could persons be more admirable on an average, than cancer patients as the Sisters see them; indeed, it seems as if no class held such brave, devout, nonsense-free human beings."

Who Was Mother Alphonsa?

The new Rosary Hill Home is dedicated as a memorial to Mother Alphonsa, the founder of the Dominican community of the Servants of Relief for Incurable Cancer. The present superior, Mother M. Rose Huber, O.S.D., says: "This Home was planned and labored for by the late lamented Mother Alphonsa Lathrop, who died July 9, 1926. It is her memorial."

Mother Alphonsa was Rose Hawthorne, the daughter of Nathaniel Hawthorne. In 1871 she became the wife of George Parsons Lathrop, author and dramatist. Both husband and wife were received into the Catholic Church in 1891. A noted priest associated with the development of the Catholic Summer School, wrote on the death of Mother Alphonsa:

"At the first meeting of the Catholic Summer School her beautiful home was the brightest spot in New London.

She attended the meeting in Plattsburg in the year 1893, and was present when her gifted husband delivered a lecture on "The Mind of Hawthorne as Reflected in the Marble Faun Written Under the Influence of the Catholic Environment of Rome."

Thus the writers who commented on the death of Mother Alphonsa instinctively associated this daughter of the Puritans with her father's novel, "The Marble Faun." Some have compared her to Hilda, the beautiful character of the story who found the cure for her spiritual trouble in the confessional, but did not find the faith which the author's daughter later did find.

After the death of her husband, Mrs. Lathrop began her work and later was received into the Dominican Order and organized the Servants of Relief for Incurable Cancer. Shortly before her death the New York Rotary Club sent a delegation of 50 members to present to Mother Alphonsa the gold medal awarded to her for outstanding service to humanity.

Besides the Rosary Hill Home at Hawthorne, N. Y., the Servants of Relief for Incurable Cancer still conduct St. Rose's Free Home which is now located at 71 Jackson Street, New York City.

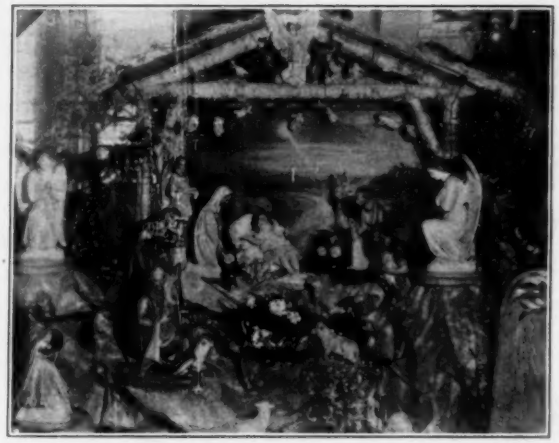
OUTPATIENT CLINICS AT MISERICORDIA HOSPITAL, NEW YORK CITY

For many years we had been struggling along with very inadequate facilities for the antepartum clinic, the only outpatient clinic carried on by the Misericordia Hospital. In an old house at the rear of the hospital this work was performed in two rooms which probably had not been painted since the house was taken over from the owners. These rooms were overburdened with huge, old-fashioned doors and walls and stained marble mantelpieces. In the waiting room was a conglomeration of furniture, from kitchen chairs to wooden benches. The examining room had two tables, very ancient—one wooden and one metal—and a large medicine cabinet dating back to the polypharmacy days, to judge by the myriad drawers and shelves that it contained. A roll-top desk and chair completed the outfit of this room.

In spite of these handicaps the house staff carried on for years, and the records of thousands of antepartum cases attest to their faithfulness. During the winter of 1926 a reorganization of the work was contemplated and additional clinics for gynecology and pediatrics were included in the plans outlined to the mother superior and the trustees of the hospital. The plans met with approval, but as no funds were available we turned to our friends, and through Mr. Clarence Wood and Mr. John Burke, the B. Altman Foundation donated $2,000 to aid us in the establishment of a clinic for women and children.

The work of renovation was immediately begun by Mr. John V. Timoney, brother of one of our staff, and in a short while these old rooms were transformed into modern clinical departments. When one considers that double walls were removed, fireplaces broken up, entirely new plumbing installed, electric lights and outlets for electrical apparatus substituted for the old gas system, floors covered in handsome rubber tile, and the walls and woodwork painted in ivory (those in the waiting room paneled as well), one can judge the amount of detail taken care of by Mr. Timoney and his architect, Mr. DelaGuardia.

In considering the equipment for the waiting room we bore in mind the desire to make this clinic unique. We felt if we made the waiting room attractive, the patients themselves would live up to their surroundings and keep the room in good order. Twenty Windsor chairs, and a handsome spinet desk for the use of the registrar, were obtained. The tall windows were curtained in cream marquisette and attractive cretonne draperies. The brown linoleum floor was varnished and waxed and a two-tone Wilton runner softened the bare look of the highly polished floor. This unusual treatment of a dispensary waiting room excited much comment at first, but our belief in the ability to train clinic patients to refined surroundings has been borne out by the past six-months' experience.

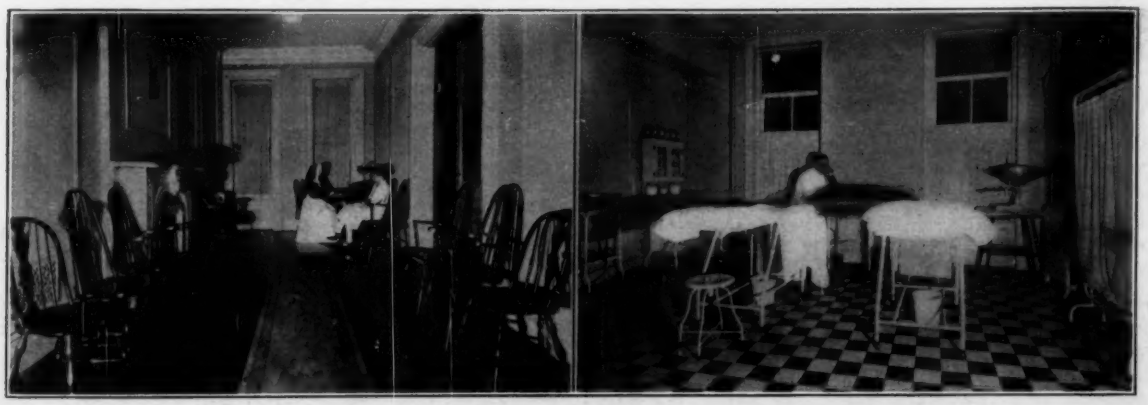


CHRISTMAS CRIB,
MISERICORDIA HOSPITAL, NEW YORK CITY.

The examining room was outfitted with two modern examining tables, a white-enamel nurse's desk, appropriate white-enamel chairs, instrument cabinets, and an instrument sterilizer.

The clinic began officially on March 7. It was divided into three departments—antepartum, gynecological, and pediatric clinics. The antepartum clinic was in charge of Dr. Francis J. O'Brien, who, with the assistance of our resident physician, Dr. George E. Deshaies, has interviewed and examined over 600 patients. Dr. Francis X. Timoney took over the gynecological clinic and at the end of six months has produced extraordinary results. Dr. Thomas W. Carey and Dr. Maurice J. Costello organized the pediatric clinic, and in a very short time the great number of babies treated seems to have justified its inception. Through all this reorganization period, and during the last six months, Mother St. Paul of the Cross, assigned by the mother superior to look after the clinic, was a very material aid in the end result. Her constant interest and experience were stimulants to us all.

The accompanying photographs taken by Mother St. Margaret show the clinic completely renovated. During the next year we expect to open another floor so as to enlarge our facilities and to carry on with greater efficiency this work so auspiciously begun.—Joseph A. Devlin, Chairman, Committee on Clinics.



NEW OUTPATIENT CLINIC, MISERICORDIA HOSPITAL, NEW YORK CITY.
Waiting Room. Examining and Consulting Room.